Query

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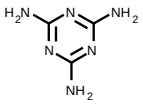
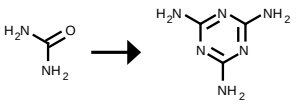
1. Query	 Search as: Product, As drawn, No salts, No mixtures	179 reactions	2011-02-05 08h:48m:17s (EST)



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Yield	Conditions & References
98 %	**Stage 1:**T= 140 - 160 °C , p= 6000.48Torr **Stage 2: With** ammonia, γ-Al_2O_3, p= 750.06 - 1500.12Torr **Moiseeva, I. D.; Kurylev, A. Yu.; Pomerantsev, V. M.; Tubolkin, A. F.**; Russian Journal of Applied Chemistry; **vol.** 75; nb. 11; (2002); p. 1883 - 1884; Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation); **vol.** 75; nb. 11; (2002); p. 1920 - 1921 View in Reaxys
88.5 - 94.4 %	EXAMPLEAn experimental run was effected with recycling of the retentate on a 20,000 t/a melamine production plant, fed with an aqueous solution at 75percent by weight of urea, operating according to the high-pressure technology comprising the mother liquor ultrafiltration section.The plant is fed with 10,940 Kg/h of aqueous solution of urea at 75percent by weight which is dehydrated in a two-step concentrator from which a stream of molten urea is emitted, which is sent directly to the reactor by means of high-pressure pumps.A permeate and a retentate are produced in the ultrafiltration section of the mother liquor. The permeate is recycled to the plant quench, i.e. the recovery and dissolution section of the raw melamine, and therefore totally recovered.The retentate consists of a colloidal suspension ofOAT in water. In particular, the retentate stream has an hourly flow-rate of 850 Kg and contains 180 Kg of OAT in <n="19"/ >colloidal suspension and 8 Kg of melamine in solution. At the outlet of the ultrafiltration area, it has a pressure of 3 bars and can therefore be recycled to the urea concentrator without the necessity of installing specific pumps. In the plant, it was sufficient to connect, by means of suitable piping, the ultrafiltration section to the tank containing urea in solution and add an evaporating unit to the first step of the concentrator.With this simple modification the plant was able to run with the total recovery of the retentate.The data collected during the test were the following:Total flow-rate to the first step of the urea concentrator: 10,940 + 850 = 11,790 Kg /hMelamine production2707 Kg/h As the urea fed was equal to :10,940 x 0.75 = 8,205 Kg/h the overall specific consumption of the plant, including the recycling of the retentate, proved to be:8,205/2,707 = 3.03 Kg urea/Kg of melamine equal to a yield of 94.4percent, with respect to the theoretical value of 2.86. With the same operating factor, considered equal to <n="20"/>7,874 hours/year, the modified plant with recycling of the retentate produces2,707 x 7,874/1,000 = 21,315 t/a of melaraine, with the same consumption of urea (i.e. the plant increased its production capacity by 6.58percent) .; COMPARATIVE EXAMPLE; The plant of the previous example was run according to a configuration in according to the state of the art wherein the retentate leaving the ultrafiltration sec- tion, consisting of a colloidal suspension of OAT in water, is sent to the demolisher/stripper for destruction. It is in fact transformed into a gaseous phase, containing NH_3 and CO_2 (the only demolition products) , returned to the adjacent urea plant, and a residual liquid phase consisting of water which can be discharged into the outside environment.Consequently only 10,940 Kg/h of aqueous solution at 75percent by weight of urea enter the urea concentrator and the plant produces, according to the purchase specification, 2,540 Kg/h of melamine which, for an operating factor of 7,874 hours/year, correspond to the production capacity of 20, 000 t/a. The consumption of 100per- cent urea is:10,940 x 0.75 = 8,205 Kg/h which compared with the hourly production of melamine of <n="21"/>2,540 Kg gives a specific consumption of8,205/2,540 = 3.23 Kg of 100percent urea per Kg of product, equal to a yield with respect to the theoretical value of 88.5percent. **in** water, Product distribution / selectivity **Patent**; **EUROTECNICA MELAMINE, LUXEMBOURG, ZWEIGNIEDERLASSUNG IN ITTIGEN**; WO2007/119156; (2007); (A2) English View in Reaxys
12.6 %	**With** ammonia, High Pressure; 70 to 300 at; at 350.deg.C; 120 min **vol.** C: MVol.D1; 45.11.4, page 449 - 450 View in Reaxys **Hunn, F. A.**; Diss. Zuerich T. H. 1959, S. 1/75 ; (from Gmelin) View in Reaxys
8.6 %	**With** ammonia, High Pressure; 70 to 300 at; at 275.deg.C; 120 min **vol.** C: MVol.D1; 45.11.4, page 449 - 450 View in Reaxys **Hunn, F. A.**; Diss. Zuerich T. H. 1959, S. 1/75 ; (from Gmelin) View in Reaxys

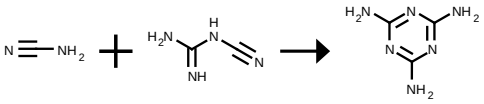
4.8 %	**With** ammonia, High Pressure; 70 to 300 at; at 300.deg.C; 120 min **vol.** C: MVol.D1; 45.11.4, page 449 - 450 View in Reaxys **Hunn, F. A.**; Diss. Zuerich T. H. 1959, S. 1/75 ; (from Gmelin) View in Reaxys
2 %	thermal decompn. in closed ampul; at 250.deg.C; 15 min **Kazarnovskii, S. N.; Malkina, N. I.**; Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation); **vol.** 31; (1958); p. 439 - 444; Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation); **vol.** 31; (1958); p. 452 - 458 View in Reaxys **vol.** C: MVol.D1; 45.8.1, page 412 - 415 ; (from Gmelin) View in Reaxys
2 %	thermal decompn. in closed ampul; at 250.deg.C; 60 min **Kazarnovskii, S. N.; Malkina, N. I.**; Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation); **vol.** 31; (1958); p. 439 - 444; Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation); **vol.** 31; (1958); p. 452 - 458 View in Reaxys **vol.** C: MVol.D1; 45.8.1, page 412 - 415 ; (from Gmelin) View in Reaxys
	With ammonium salts, ammonia, T= 250 - 350 °C , unter Druck **Patent**; **Allied Chem. and Dye Co.**; US2550659; (1947) View in Reaxys **Patent**; **Monsanto Chem. Co.**; US2819265; (1955) View in Reaxys
	With iron, T= 400 - 450 °C , unter Druck **Patent**; **Hibernia**; DE955685; (1956) View in Reaxys
	With sulfur dioxide, ammonia, guanidin; amido sulfate, T= 260 - 360 °C , unter Druck **Patent**; **Consol. Mining and Smelting Co. Canada**; US2902488; (1956) View in Reaxys **Patent**; **Consol. Mining and Smelting Co. Canada**; US2824104; (1956) View in Reaxys **Patent**; **Consol. Mining and Smelting Co. Canada**; US2899433; (1956) View in Reaxys
	T= 350 °C **Patent**; **Am. Cyanamid Co.**; US2566231; (1943) View in Reaxys
	With ammonia, T= 480 °C , p= 37503.8 - 150015Torr , Melt phase reaction **Patent**; **AMI AGROLINZ MELAMINE INTERNATIONAL GMBH**; WO2004/96782; (2004); (A1) German View in Reaxys
	T= 132 - 400 °C , p= 97509.8 - 600060Torr **Patent**; **AMI AGROLINZ MELAMINE INTERNATIONAL GMBH**; WO2004/111016; (2004); (A1) German View in Reaxys
	Example Name 1 **With** Montmorillonit, Time= 480h, T= 400 °C , Product distribution / selectivity **Patent**; **BASF AKTIENGESELLSCHAFT**; WO2004/65371; (2004); (A1) German View in Reaxys
	Example Name 1

	With aluminum oxide, Time= 480h, T= 400 °C , Product distribution / selectivity **Patent**; **BASF AKTIENGESELLSCHAFT**; WO2004/65371; (2004); (A1) German View in Reaxys
	Example Name 1 **With** silica-alumina, Time= 480h, T= 400 °C , Product distribution / selectivity **Patent**; **BASF AKTIENGESELLSCHAFT**; WO2004/65371; (2004); (A1) German View in Reaxys
	Example Name 2 **With** Montmorillonit, Time= 1500h, T= 400 °C , p= 1125.11Torr , Product distribution / selectivity **Patent**; **BASF AKTIENGESELLSCHAFT**; WO2004/65371; (2004); (A1) German View in Reaxys
	T= 230 - 347 °C , p= 112511 - 120012Torr , Neat (no solvent), Aldol Condensation **Patent**; **AMI - AGROLINZ MELAMINE INTERNATIONAL GMBH**; WO2006/13079; (2006); (A2) German View in Reaxys
	Example Name 1; 2 T= 40 - 320 °C , Gas phase, Product distribution / selectivity **Patent**; **LURGI AG**; WO2006/119814; (2006); (A1) German View in Reaxys
	Example Name 1; 2 T= 240 - 400 °C , p= 1275.13Torr , Gas phase, Product distribution / selectivity **Patent**; **LURGI AG**; WO2006/119815; (2006); (A1) German View in Reaxys
	Example Name 3 T= 40 - 320 °C , p= 1200.12Torr , Gas phase, Product distribution / selectivity **Patent**; **LURGI AG**; WO2006/119814; (2006); (A1) German View in Reaxys
	With reference to the figure, the process for the integrated production of urea and melamine according to the present invention is based upon urea synthesis, in a respective urea production section 12, starting from ammonia and carbon dioxide and upon melamine synthesis, in a respective melamine synthesis section 14, starting from at least a part of the urea produced in the urea production section 12. In melamine synthesis, off-gases are formed comprising ammonia and carbon dioxide (and - in minimal quantities - steam) that are in turn used in urea synthesis. In particular, said ammonia and said carbon dioxide are fed into a first urea synthesis reactor 16, which preferably operates at high pressure, i.e. a pressure approximately between 100 and 450 bar. A first reaction mixture comprising urea and ammonium carbamate is discharged from said first reactor 16 and is sent into a urea recovery unit 18. Further urea is synthesized in a second urea synthesis reactor 28, included in the urea production section 12, into which said off-gases are fed. A second reaction mixture comprising urea and ammonium carbamate is discharged from said reactor 16 and sent into the urea recovery unit 18. In the urea recovery unit 18, the urea contained in said first and said second reaction mixture is separated from an ammonium carbamate aqueous solution. More specifically, in a decomposition section 20, comprising at least one decomposer, included in the urea recovery unit 18, the reaction mixtures undergo a partial decomposition treatment of the ammonium carbamate and a partial separation treatment of the free ammonia in aqueous solution present in said first mixture, obtaining an aqueous solution essentially comprising urea. The vapours leaving said decomposition section 20 are at least partially condensed in a condensation section 22, comprising at least one condenser, included in the urea recovery unit 18, obtaining a carbamate aqueous solution, which is recycled in the urea production section 12 in the way described hereafter. The aqueous solution essentially comprising urea undergoes a finishing treatment in a suitable per se conventional urea finishing apparatus 24, which is arranged downstream of the decomposition section 20, obtaining urea ready for packaging and waste water. The Waste water is subjected to purification in a suitable per se conventional waste water treatment apparatus 26, which is arranged downstream of

	the urea finishing apparatus 24, before being released into the environment. In the waste water treatment apparatus 26 vapours are generated that are sent to the condensation section 22, for their at least partial condensation. In accordance with an aspect of the present invention, said ammonium carbamate aqueous solution is fed to the second urea synthesis reactor 28. The second reactor 28 preferably operates at high pressure, i.e. at a pressure approximately between 70 and 250 bar. The second reaction mixture is treated in the decomposition section 20, together with the first reaction mixture obtained in the first urea synthesis reactor 16, so that both the urea contained in the first reaction mixture and the further urea contained in the second reaction mixture are separated in the unit 18 at the same time. The off-gases produced in the melamine synthesis section 14, comprising ammonia and carbon dioxide, which are fed into the second urea synthesis reactor 28, react with the ammonium carbamate solution, advantageously supplying the heat necessary for the reaction in the second reactor 28 itself. Preferably, said ammonium carbamate aqueous solution is fed to said second urea synthesis reactor 28 after a ammonia recovery carried out in a per se conventional ammonia recovery apparatus 30. The ammonia recovered here is then sent to the ammonia feed for the first reactor 16. Preferably, the ammonia and carbon dioxide are mixed before entry into the first reactor 16, and enter into it in a suitable proportion, in a per se conventional manner. Preferably, the aforementioned ammonia and carbon dioxide mixture, before being made to react in the first reactor 16, is subjected to condensation, preferably partial, in a further condenser 32, in order to recover heat and at the same time to suitably lower the temperature of the mixture to be fed into the first reactor 16, so as to control the reactor outlet temperature. As far as the operating pressures are concerned, the decomposition section 20 preferably operates at medium pressure, for example at a pressure approximately between 10 and 80 bar. The first reaction mixture leaving the first reactor 16 is expanded at the operating pressure of the decomposition section 20, before being fed therein. Advantageously, the second reactor 28 operates at a pressure similar to that of the melamine synthesis reactor included in said melamine synthesis section 14, so that the off-gases are fed to the second reactor 28 without having to operate any compression on them. The second reaction mixture leaving the second reactor 28 is expanded to the operating pressure of the decomposition section 20, before being fed therein. The further condenser 32 preferably operates at the same pressure as the first reactor 16. The present invention also refers to a plant for the integrated production of urea and melamine, which carries out the process indicated above. The plant comprises the urea production section 12, wherein the urea is discharged with a duct 33, and the melamine synthesis section 14, wherein the melamine is discharged with a duct 37. The section 14 is fed with at least part of said urea through a duct 35 that extends from the duct 33. The urea production section 12 is fed by a duct 34 carrying ammonia and by a duct 36 carrying carbon dioxide. The ducts 34 and 36 join into a duct 38 that feeds the first urea synthesis reactor 16. In the preferred embodiment schematized in figure 1, the duct 38 feeds the further condenser 32 and a duct 40 is provided for the fluid communication between the further condenser 32 and the first urea synthesis reactor 16. A duct 42 is provided for the fluid communication between the first reactor 16 and the decomposition section 20. The decomposition section 20 is in communication with the condensation section 22 through a duct 44 and with the apparatus 24 through a duct 46. A duct 48 is provided for the fluid communication between the apparatus 24 and the apparatus 26. The apparatus discharges water through a duct 50 and is in communication with the condensation section 22 through a duct 52. A duct 54 is provided for the fluid communication between the condensation section 22 and the apparatus 30. The apparatus 30 is in communication with the second reactor 28 through a duct 56 and with the duct 34 through a duct 58. The duct 56 is used to completely recycle the carbamate aqueous solution generated in the urea recovery unit 18 to the second reactor 28. A duct 60 is provided for the fluid communication between the section 14 and the second reactor 28. The second reactor 28 is in fluid communication with the decomposition section 20 through a duct 62. In an alternative embodiment the duct 62 can be fitted onto the duct 42 that is - as stated - in fluid communication with the decomposition section 20 itself. From the previous description it can clearly be seen that a process for the integrated production of urea and melamine according to the invention achieves numerous advantages the first of which lies in the fact that an unusually high overall yield of the urea production section is obtained. , Industry scale **Patent**; **UREA CASALE S.A.**; EP1752447; (2007); (A1) English View in Reaxys
>80	**With** ammonia, High Pressure; pressure between 70 and 300 at; temp. 400 to 450.deg.C; 120 min **vol.** C: MVol.D1; 45.11.4, page 449 - 450 View in Reaxys **Hunn, F. A.**; Diss. Zuerich T. H. 1959, S. 1/75 ; (from Gmelin) View in Reaxys
	With ammonia **Patent**; **Monsanto Chem. Co.**; US2819266; (1955) View in Reaxys **vol.** C: MVol.D1; 45.11.4, page 449 - 450 View in Reaxys

	Lienhard, E.; Diss. Zuerich T. H. 1954, S. 1/98 ; (from Gmelin) View in Reaxys
	With ammonia **in** melt, High Pressure; at 400 - 500.deg.C; pressure of NH3 about 100 at **Sato, S.**; Japan. Chem. Quart.; **vol.** 3; nb. 3; (1967); p. 13 - 16 View in Reaxys **vol.** C: MVol.D1; 37.1.3.2, page 351 - 353 ; (from Gmelin) View in Reaxys
	With ammonia **in** melt, High Pressure; at 390 - 450.deg.C; partial tension of NH3 = 62 - 140 at **Sato, S.**; Japan. Chem. Quart.; **vol.** 3; nb. 3; (1967); p. 13 - 16 View in Reaxys **vol.** C: MVol.D1; 37.1.3.2, page 351 - 353 ; (from Gmelin) View in Reaxys
	With ammonia **in** neat (no solvent), High Pressure; at 752.deg.F; at pressure 5.2 - 10.33 at; fluid bed containing catalyst; repeated recrystn.; purity: 99.8percent **Ellwood, P.**; Chem. Eng.; **vol.** 75; nb. 11; (1968); p. 124 - 126 View in Reaxys **vol.** C: MVol.D1; 37.1.3.2, page 351 - 353 ; (from Gmelin) View in Reaxys
	Example Name 1; 2 Liquid melamine was produced from urea melt (1.4 t/h, 140°C) at 5.5 MPa in a combined liquid-phase reactor/evaporator, which was heated with molten salt. The liquid melamine was evaporated at 419.deg.C by introducing 1.7 t/h ammonia of 330°C. The gas from the reactor/evaporator (containing mainly ammonia, CO_2 and melamine vapor) was quenched rapidly in a cooling tower at a pressure Pc with an aqueous carbamate solution originating from an absorption/condensation unit. The quench time is defined as the time needed to cool the melamine containing gas to 250°C. A melamine slurry in aqueous carbamate solution and quench offgas were produced. The quench offgas was sent to an absorption/condensation unit operating at almost the same pressure as the cooling tower. In the absorption zone water and CO_2 were removed from the quench offgas by partial condensation and by washing with liquid ammonia, producing an aqueous carbamate solution (CS) as a bottom stream and ammonia gas as a top stream. Part of the aqueous carbamate solution was returned to the cooling tower and used as a cooling agent. Water was added to his carbamate solution before returning to the cooling tower to balance the water export. , T= 140 °C , p= 41254.1Torr **Patent**; **DSM IP ASSETS B.V.**; WO2009/80176; (2009); (A2) English View in Reaxys
	Example Name 2 The conversion of urea into melamine was demonstrated in a train of fully baffled reactors in pilot scale. The reactors train comprised 5 stirred-tank reactors of the same size, each one having the following characteristics: cylindrical, vertical vessel with dished ends:design pressure 180 bar, design temperature 430.deg.C;internal diameter 700 mm, total volume 600 liters;vertical agitator based on a single 6 flat-blades turbine rotating at 400 rpm, magnetic drive,4 baffles located at the vessel wall, and set at 90.deg. each other;heat exchange surface in form of 1" pipe helical coil, distributed in two co-axial banks for a total of 8 m^2 heat exchange surface;piping connections as follows: liquid feed pipe, in form of deep pipe extending inside the reactor until in vicinity of the upper face of the agitator turbine, ammonia feed pipe, ending immediately below the agitator turbine, liquid overflow pipe, determining the level of liquid inside the vessel, gas venting pipe, let-down connection giving the possibility of emptying the vessel, when required;external electric heating, avoiding the internal reactor wall to cool down below 350-360.deg.C in case of start-up, or of shut down, or of unsteady operation;temperature and pressure sensing elements, to provide the output signals allowing the reactor temperature and pressure to be controlled. The five reactors were connected in cascade, in liquid flow series, as shown in Fig. 4 hereto, this meaning that the liquid overflowing from the first reactor was directly passed by gravity flow to the second reactor, located at a lower level, the liquid from the second to the third one, continuing then with the same modality up to the discharge of the 5^{th} reactor. The vent connections of the reactors were collected in a common header, ending in a pipe where the pressure control of the system was effected on the resulting stream. The coils of the first three reactors were connected in parallel to a header distributing a flow of molten salt, delivered to the coils at 470.deg.C. The coils of the last two reactors were connected in parallel to a header distributing molten salt at 340.deg.C. Molten urea, delivered by a urea producing plant located in the vicinity, was fed to the first reactor, through its inlet deep pipe. Ammonia gas, from the same plant, was fed, under dedicated flow control, and after further preheating, to all 5

	reactors, through pipes extending up to the centre of the lower face of each agitator turbine. In steady-state conditions, with temperature at 400.deg.C in the second and third reactor, and system pressure at 150 bar, the urea inflow to the first reactor was adjusted to 3000 kg/h. The ammonia flow to each reactor was controlled at 100 kg/h. The residence time referred to urea was in the range of 10 minutes only per reactor. Notwithstanding the substantially reduced reactor volume, in comparison to the known art, the liquid overflow from the third reactor was demonstrating a complete urea conversion, being practically urea-free by analysis. At the same time the residual reaction intermediates, as oxy-amino-triazines, were totally converted to melamine. With the selected configuration, the melamine melt crossing the last reactors is very efficiently contacted with ammonia by action of the respective mechanical agitators, obtaining the elimination of the residual carbon dioxide by stripping, and a sound recovery of melamine from the poly-condensate compounds, as melem, melam, melon. The temperature approaches the molten salt temperature of 340.deg.C. With the exemplified reactor train configuration and operating conditions, notwithstanding the relatively short residence time given to the reactant, the obtained melamine melt is rather pure melamine, wherein impurities, included urea, account totally for some tenths of a unit percent only. The melt is ready to supply highly pure melamine after proper solidification in form of crystals, operated following the known separation techniques. **With** ammonia, T= 400 °C , p= 112511Torr , Train of fully baffled reactors in pilot scale, Product distribution / selectivity **Patent**; **UREA CASALE S.A.**; EP2119710; (2009); (A1) English View in Reaxys
	Example Name 1 Urea was converted into melamine in a pilot reactor having a diameter of 50 cm and a catalyst bed height of about 3 m at a temperature of about 400.deg. C. The amount of fluidizing gas (NH_3/CO_2) was about 110 m^3(S.T.P.)/h. Fluidizing gas/urea ratio (FUR): 1.8; catalyst space velocity: 0.15 $g_{urea}/g_{catalyst}$h. Pressure: 3 bar.Three different catalyst types were used:Catalyst 1 (comparative example 1) is a zeolite-containing catalyst commercially available for the melamine synthesis and having an MN content of 3900 ppm in the tested batch.Catalyst 2 (comparative example 2) is a zeolite-free catalyst based on SiO_2/Al_2O_3 with an Ni/V content below the limit of detection, which was 100 ppm (method of measurement: X-ray fluorescence).Catalyst 3 (example 1) is a zeolite-containing catalyst according to the invention which has an Ni/V content of <100 ppm.The results are shown in Table 1. The conversion was determined via the melamine content and the amount of urea and standardized. **With** carbon dioxide, ammonia, zeolite-containing catalyst, Ni/V content of <100 ppm, T= 400 °C , p= 2250.23Torr , Conversion of starting material **Patent**; **BASF SE**; US2010/184976; (2010); (A1) English View in Reaxys



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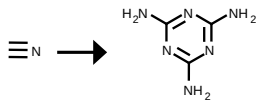
Yield	Conditions & References
93.0%	Example Name 4 Example Title EXAMPLE 4 EXAMPLE 4 A solution of 30 g of dicyandiamide and 30 g of solid cyanamide in 120 g of dimethylsulfoxide is added over a period of 11 minutes to a mixture, heated to 180.deg. C, of 4.0 g of potassium hydroxide and 4.0 g of dicyandiamide in 80 g of dimethylsulfoxide. After an additional 5 minutes of reaction time at 180.deg. C the mixture is cooled. The precipitated melamine is removed by filtration, stirred up in water, and again filtered. The first yield amounts to 53.8 g of melamine or 84.1percent. As a second yield, an additional 5.7 g of 8.9percent of melamine was found in the filtrate and wash water, so that the total yield amounted to 93.0percent. **With** potassium hydroxide **in** water, dimethyl sulfoxide **Patent**; **Suddeutsche Kalkstickstoff-Werke Aktiengesellschaft**; US4069383; (1978); (A1) English View in Reaxys



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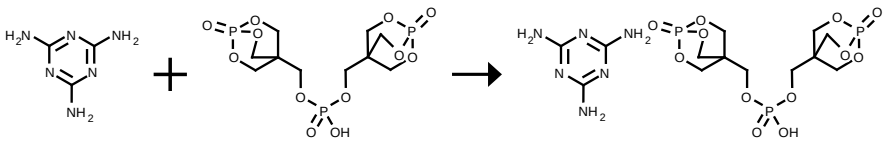
Yield	Conditions & References
	With Catalyst M-Chromium oxide, ammonia, T= 450 - 750 °C , oder anderen Katalysatoren **Patent**; **Monsanto Chem. Co.**; US1855396; (1958) View in Reaxys
	With Catalyst M-Chromium oxide, ammonia, T= 350 - 400 °C , p= 35Torr , oder anderen Katalysatoren **Patent**; **Am. Cyanamid Co.**; US2577201; (1950) View in Reaxys
	With silver(I,III) oxide, air, silica gel, T= 400 °C **Patent**; **Am. Cyanamid Co.**; US2835556; (1953) View in Reaxys
0.18 - 98 %	Example Name 1; 2; 3; 4; III The plug flow reactor was filled with 0.24 g of the pelletized Cu-V-Ag-Pr-Co-Li/SiO_2 catalyst as prepared above (catalyst 1). After catalyst pre-treatment in H_2, cooling down to the desired reaction temperature of 400.deg.C and pressurizing to 50 bar, the reactant gases were led through the reactor with a total gas hourly space velocity of 2.10^4 ml/(g.h). The inlet gas flow composition amounted to 0.1 vol percent HCN, 36.5 vol percent NH_3 and 63.4 vol percent He. Of the amount of carbon as fed to the reactor in the form of HCN, 4.7 percent was found to have reacted into melamine. Of all melamine formed, more than 99percent was found on the SiC, i.e. the cooler part below the catalyst and less than 1percent was extracted from the catalyst. Selectivity to melamine was 98percent.; The general procedure as described above was followed, except that the reactor was packed with the double amount of catalyst, reducing the gas hourly space velocity to 1.10^4 ml/(g.h). In this experiment a melamine yield of 12.3 percent was obtained; The same settings were applied as in Example 2, except that the reactor was operated at the lower pressure of 40 bar. In this experiment a melamine yield of 10.6 percent was obtained; The same settings were applied as in example 2, except that the reactor was operated at the lower temperature of 380 .deg.C. In this experiment a melamine yield of 4.6 percent was obtained.; The same settings were applied as in Example 1, except that the reactor was operated at atmospheric pressure. In this experiment a melamine yield of only 0.18percent was obtained **With** ammonia, Cu-V-Ag-Pr-Co-Li/SiO_2, T= 380 - 400 °C , p= 760.051 - 37503.8Torr , Product distribution / selectivity **Patent**; **DSM IP Assets B.V.**; EP2072504; (2009); (A1) English View in Reaxys
0.32 %	Example Name II The same settings were applied as in Example 1, except that the reactor was packed with the Comparative catalyst 2: Pd-MgO catalyst. In this experiment a melamine yield of only 0.32percent was obtained **With** ammonia, Pd-MgO, T= 400 °C , p= 37503.8Torr , Product distribution / selectivity **Patent**; **DSM IP Assets B.V.**; EP2072504; (2009); (A1) English View in Reaxys
0.13 %	Example Name I The same settings were applied as in Example 3, except that no catalyst was packed in the reactor. In this experiment a melamine yield of only 0.13percent was obtained. **With** ammonia, T= 400 °C , p= 30003Torr , Product distribution / selectivity **Patent**; **DSM IP Assets B.V.**; EP2072504; (2009); (A1) English View in Reaxys



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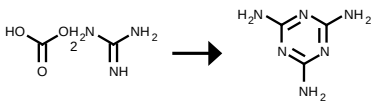
Yield	Conditions & References
	Example Name 2 Example Title Preparation of Melamine Salt of bis-(pentaerythritol phosphate) Phosphoric Acid (abbreviated as b-PEPAP.MEL) EXAMPLE 2 The product mixture of Example 1 was retained in the ball mill reactor, after the liquid portion was poured out. 21 g (0.166 mol) of melamine was poured into the ball mill, and 300 ml of acetonitrile which was pre-heated to 80.deg. C. was added. The ball mill reactor was closed and rotated for 6 hours. 31P-NMR spectrum of a sample of the reaction solution taken from the ball mill reactor showed no existence of 31p peak, which indicated that b-PEPAP and phosphoric acid were all consumed. The product b-PEPAP.MEL and the by-product melamine salt of phosphoric acid were all insoluble in acetonitrile solvent. The reaction was completed with a conversion rate of 100percent. **With** phosphoric acid **in** acetonitrile, Time= 6h, T= 80 °C **Patent**; **Chung-Shan Institute of Science and Technology**; US2004/82782; (2004); (A1) English View in Reaxys
	Example Name 1 EXAMPLE 1; Diphosphorous pentaoxide (P_2O_5) and pentaerythritol (PE) were fed into a double-screw extruder at a molar ratio of 1:1. Esterification was performed at a rotation speed of 100 min^{-1} and a sleeve temperature in the range of 30 to 200.deg. C. to obtain bis(pentaerythritol phosphate) phosphoric acid. Sampling was made at the outlet of the extruder, and a ^{31}P-NMR map was used to calculate the esterifying rate. The result was recorded in Table 1.An amount of 122.4 g of bis(pentaerythritol ester) phosphate, 111 g of melamine, and 500 g of pure water was added into a 1000 mL beaker, and the reacting temperature was increased to 90.deg. C. while stirring. The duration of the process was 30 minutes. Then, the reacting temperature was decreased to 25.deg. C. to remove water by filtration. A melamine salt of bis(pentaerythritol phosphate) phosphoric acid was obtained after baking. **in** water, Time= 0.5h, T= 90 °C **Patent**; **Chang Chun Plastics Co., Ltd.**; US2008/255353; (2008); (A1) English View in Reaxys



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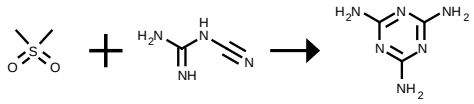
Yield	Conditions & References
	With water, phenol, T= 100 °C , zuletzt Erhitzen auf 160grad **Nencki**; Journal fuer Praktische Chemie (Leipzig); **vol.** <2> 17; (1878); p. 239 View in Reaxys
	With ammonia, T= 160 °C **Davis**; Journal of the American Chemical Society; **vol.** 43; (1921); p. 2233 View in Reaxys
	T= 180 - 190 °C **Smolka; Friedreich**; Monatshefte fuer Chemie; **vol.** 10; (1889); p. 95; Monatshefte fuer Chemie; **vol.** 11; (1890); p. 45 View in Reaxys
	With ammonia **in** water, byproducts: CO2; heating at 160.deg.C in closed tube **Davis, T. L.**; Journal of the American Chemical Society; **vol.** 43; (1921); p. 2230 - 2233 View in Reaxys

	vol. C: MVol.D1; 49.6.5, page 474 - 475 ; (from Gmelin) View in Reaxys



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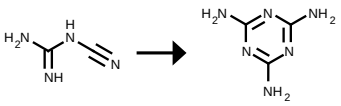
Yield	Conditions & References
	Example Name 5 Example Title EXAMPLE 5 EXAMPLE 5 113 g of dimethylsulfone is melted and heated to 100.deg. C. 63 g of dicyandiamide and 5.6 g of powdered potassium hydroxide are added to the melt. The exothermic reaction raises the temperature of the mixture quickly to 210.deg. C. After cooling to 60.deg. C, the reaction mass is stirred up in water, suction filtered, and freed of dimethylsulfone by washing with water. After drying, 44 g of melamine is obtained, corresponding to 70percent of the theoretically possible amount. **With** potassium hydroxide **in** water **Patent**; **Suddeutsche Kalkstickstoff-Werke Aktiengesellschaft**; US4069383; (1978); (A1) English View in Reaxys



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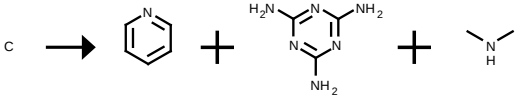
Yield	Conditions & References
	With ammonia, T= 120 °C **Stolle; Krauch**; Chemische Berichte; **vol.** 46; (1913); p. 2337 View in Reaxys
	With ammonia **Davis**; Journal of the American Chemical Society; **vol.** 43; (1921); p. 2233 View in Reaxys **Franklin**; Journal of the American Chemical Society; **vol.** 44; (1922); p. 504 View in Reaxys **Davis; Underwood**; Journal of the American Chemical Society; **vol.** 44; (1922); p. 2601 View in Reaxys
	With ammonia, T= 160 °C , Darstellung **De Bell,J.M.; Goggin,W.C.; Gloor,W.E.**; German Plastics Practice <Springfield 1946>,S.246 View in Reaxys **Kirk,R.E.; Othmer,D.F.**; Encyclopedia of Chemical Technology,Bd.I <New York 1947>,S.841 View in Reaxys **Piepenbrinck in Houben-Weyl**; Methoden der Organischen Chemie,4.Aufl.;Bd.VIII <Stuttgart 1952>,S.240 View in Reaxys **Patent**; **Ciba**; DE689444; (1940) View in Reaxys
	T= 300 °C **Schwezowa; Kasarnowskii**; Trudy Chim. chim. Technol.; **vol.** 1; (1958); p. 537; Chem.Abstr.; (1960); p. 7724 View in Reaxys
	Patent; **Am. Cyanamid Co.**; US2737513; (1952) View in Reaxys **Patent**; **Suedd. Kalkstickstoff-Werke**; DE820311; (1951); DRP/DRBP Org.Chem.

	View in Reaxys **Oshima**; Kogyo Kagaku Zasshi; **vol.** 53; (1950); p. 135; Chem.Abstr.; (1953); p. 2183 View in Reaxys
	With ammonia, T= 200 - 300 °C , unter Druck **Sueszer et al.**; Rev. Chim. Bukarest; **vol.** 9; (1958); p. 509; Chem.Abstr.; (1961); p. 21142 View in Reaxys **Oshima**; Sci. Rep. Res. Inst. Tohoku Univ. <A>; **vol.** 3; (1951); p. 126,128 View in Reaxys **Patent**; **Suedd. Kalkstickstoff-Werke**; US2706729; (1950) View in Reaxys **Patent**; **Suedd. Kalkstickstoff-Werke**; DE953081; (1951); DRP/DRBP Org.Chem. View in Reaxys **Patent**; **Suedd. Kalkstickstoff-Werke**; DE839195; (1951); DRP/DRBP Org.Chem. View in Reaxys **Patent**; **Monsanto Chem. Co.**; US2500489; (1946) View in Reaxys **Kurabayashi; Yanagiya**; Kogyo Kagaku Zasshi; **vol.** 56; (1953); p. 379,426; Chem.Abstr.; (1954); p. 10593,11429 View in Reaxys
	T= 180 - 200 °C , im Autoklaven unter Wasserstoff (Anfangsdruck 100 at) **Patent**; **Henkel and Cie.**; DE733774; (1938); DRP/DRBP Org.Chem. View in Reaxys **Patent**; **Henkel and Cie.**; DE739038; (1938) View in Reaxys
	T= 180 - 200 °C , unter Stickstoff (Anfangsdruck 60 at) **Patent**; **Henkel and Cie.**; DE733774; (1938); DRP/DRBP Org.Chem. View in Reaxys **Patent**; **Henkel and Cie.**; DE739038; (1938) View in Reaxys
	Einfluss der Temperatur, des Drucks und anderer Reaktionsbedingungen auf die Ausbeute **Kurabayashi; Yanagiya**; Kogyo Kagaku Zasshi; **vol.** 58; (1955); p. 750 - 763; Chem.Abstr.; (1956); p. 12076 View in Reaxys
	Example Name 11 Example Title EXAMPLE 11 EXAMPLE 11 43 g of diamide is added over a period of 40 minutes to a mixture of 187 g of dimethylsulfoxide, 10.6 g of potassium hydroxide and 1 g dicyandiamide. After another 5 minutes of reaction time at 135.deg. C, the mixture is cooled. The precipitated melamine is suction filtered, stirred up in water, and again filtered. After drying 48.3 g of melamine is obtained, corresponding to 57.5percent. **With** potassium hydroxide **in** dimethyl sulfoxide **Patent**; **Suddeutsche Kalkstickstoff-Werke Aktiengesellschaft**; US4069383; (1978); (A1) English View in Reaxys



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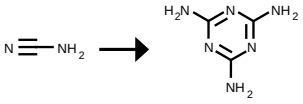
Yield	Conditions & References
	Example Name 2 A Ru/MgO catalyst was prepared as in Example 1 by vapour-phase decomposition of a ruthenium salt (triruthenium dodecarbonyl) in the presence of MgO powder. 1 gram of MgO (99.99percent purity) and 0.111 gram of triruthenium dodecarbonyl were mixed thoroughly and ground for 30 minutes. The mixture thus prepared was treated under vacuum

	at 450.deg. C. for 5 hours.A micro reactor was filled with 48 mg of the Ru/MgO catalyst, whereby the catalyst was diluted in silica to ensure plug flow conditions. A He/O_2 mixture was fed to the reactor; the temperature in the reactor was raised by 5.deg. C. /min to 450.deg. C. and kept there; after 30 minutes at 450.deg. C., the feed was switched to a mixture of He and H_2 for 2 hours, after which step a) and b) were executed. The temperature in the reactor was raised to 600.deg. C. and gas was led through the reactor with a flow rate of 80 ml/min; the gas flow consisted of 4 ml/min CH_4, 10 ml/min N_2, 30 ml/min H_2, and 36 ml/min He. The space velocity over the catalyst was 100,000 ml/(g.h). The gas that exited the reactor was analysed; of the amount of carbon as fed to the reactor, 1.24 ppm was found to have reacted into dimethylamine, 0.05 ppm into pyridine and 0.26 ppm into melamine.Example 2 clearly demonstrates that the process according to the invention leads to the formation of a nitrogen-containing compound. **With** nitrogen, hydrogen, magnesium oxide-supported Ru, T= 450 - 600 °C **Patent**; **Peters, Alexander Volker A.V.; Anderson, Bruce Gordon B.G.; Pestman, Robert R.; Groothaert, Marijke Hilde Leen M.H.L.; Tjioe, Tjay Tjien T.T.; Kanaparthi, Ramesh R.**; US2010/48936; (2010); (A1) English View in Reaxys



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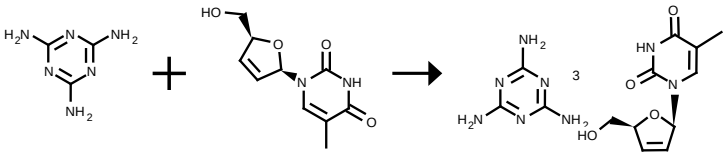
Yield	Conditions & References
	bei 150grad geht in Dicyandiamid ueber, das bei hoeherem Erhitzen in Melamin und Ammoniak zerfaellt **Cloez; Cannizzaro**; Comptes Rendus Hebdomadaires des Seances de l'Academie des Sciences; **vol.** 32; (1851); p. 63; Justus Liebigs Annalen der Chemie; **vol.** 78; (1851); p. 229 View in Reaxys **Lemoult**; Annales de Chimie (Cachan, France); **vol.** <7>16; (1899); p. 406; Comptes Rendus Hebdomadaires des Seances de l'Academie des Sciences; **vol.** 125; (1897); p. 782 View in Reaxys **Drechsel**; Journal fuer Praktische Chemie (Leipzig); **vol.** <2> 13; (1876); p. 331 View in Reaxys **Drechsel**; Journal fuer Praktische Chemie (Leipzig); **vol.** <2> 11; (1875); p. 301; Journal fuer Praktische Chemie (Leipzig); **vol.** <2> 13; (1876); p. 331 View in Reaxys
	With acids **Werner**; Journal of the Chemical Society; **vol.** 107; (1915); p. 721 View in Reaxys
	heating over 110.deg.C **Drechsel, E.**; J. Prakt. Chem. (2); **vol.** 13; (1876); p. 330 - 333 View in Reaxys **vol.** C: MVol.D1; 23.1, page 258 - 259 ; (from Gmelin) View in Reaxys
	With potassium hydroxide **in** further solvent(s), Kinetics, at 110 - 150.deg.C in diethylene glycol monoethyl ether **Kawasaki, A.; Ogata, Y.**; Tetrahedron; **vol.** 22; (1966); p. 1267 - 1274 View in Reaxys **vol.** C: MVol.D1; 37.1.2, page 348 - 350 ; (from Gmelin) View in Reaxys
	150.deg.C, violent **Baughen, A. E.**; Can. Chem. Process Ind.; **vol.** 28; (1944); p. 805 - 811 View in Reaxys **vol.** C: MVol.D1; 23.1, page 258 - 259 ; (from Gmelin) View in Reaxys
	over 200.deg.C

	Werner, A. E.; Journal of the Chemical Society; **vol.** 107; (1915); p. 715 - 728 View in Reaxys **vol.** C: MVol.D1; 23.1, page 258 - 259 ; (from Gmelin) View in Reaxys



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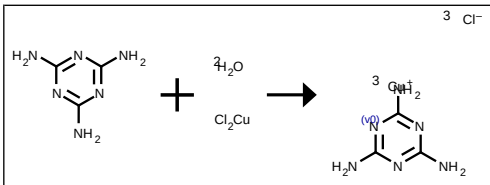
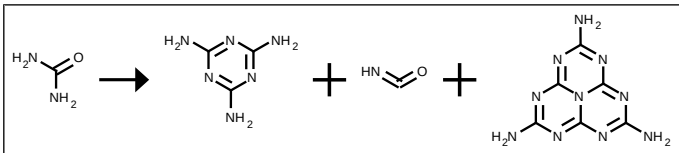
Yield	Conditions & References
	Example Name 10 Stavudine:Melamine Co-crystal [00230] To stavudine (132 mg, 0.58 mmol) was added melamine (34 mg, 0.27 mmol). To the solid mixture was added 1:1 ethanol: water (2 mL) and the solution was heated for 5 minutes at approximately 40 degrees C. The homogeneous solution was then allowed to cool to room temperature (about 22 degrees C) and allowed to slowly evaporate in an unmodified atmosphere. After 4 days, a precipitate was observed, collected, and dried to give a 3:1 stavudine:melamine co-crystal as small colorless plates. The crystals were characterized using DSC, IR, PXRD, MEL-TEMP, and single-crystal x-ray analysis. [00231] DSQ thermogram shows an endothermic transition at about 212 degrees C (Figure 16). The stavudine:melamine co-crystal can be characterized by any one, any two, any three, any four, any five, or any six or more of the IR peaks in Figure 17B including, but not limited to, 1688, 1655, 1542, 1446, 1268, 1113, 1091, 1044, 799, 690, and 614 cm"1. (Figure 17A shows the IR spectrum of the stavudine:melamine co- crystal, Figure 17B shows the same spectrum with the fingerprint region expanded.) A MEL-TEMP was used to determine the melting point of the stavudine:melamine co- crystal. The melting point was determined to be about 186 -190 degrees C. The stavudine:melamine co-crystal can be characterized by any one, any two, any three, any four, any five, or any six or more of the PXRD peaks in Figure 18 including, but not limited to, 11.06, 18.32, 20.24, 22.4, 24.64, 28.08, and 33.92 degrees 2-theta. [00232] Single crystal x-ray data (Bruker SMART-APEX CCD): monoclinic C2, a = 28.720(4) angstroms, b = 16.622(3) angstroms, c = 15.900(2) angstroms, alpha = 90 degrees, beta = 102.909(3) degrees, gamma = 90 degrees, V = 7398.3(19) cubic angstroms, T = 100(2) K, Z = 8. **in** ethanol, water, Time= 0.0833333h, T= 40 °C **Patent**; **TRANSFORM PHARMACEUTICALS, INC.**; WO2006/7448; (2006); (A2) English View in Reaxys



Rx-ID: 27563181 View in Reaxys

Yield	Conditions & References
50 %	**With** aluminum isopropoxide **in** water, High Pressure; heating mixt. of copper compd., melamine, aluminium compd. and water at 160.deg.C for 60 h; cooling over 60 h, isolation of crystals, elem. anal. **Zhang, Lei; Zhang, Jian; Li, Zhao-Ji; Cheng, Jian-Kai; Yin, Pei-Xiu; Yao, Yuan-Gen**; Inorganic Chemistry; **vol.** 46; (2007); p. 5838 - 5840 ; (from Gmelin) View in Reaxys



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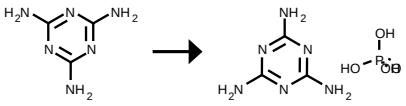
Yield	Conditions & References
	Example Name 1

	In the fluidized-bed reactor (1) urea is decomposed at 400.deg.C and 3 bar. The catalyst consists of pure y-alumina. As fluidizing gas the reaction gas ob- tained at the formation of melamine from urea is used, a mixture of about 70 vol. percent ammonia and 30 vol. percent carbon dioxide. The gas coming from the fluidized-bed reactor is directly fed to the filter-reactor (2). The filter-reactor contains four ring-reactors (3), (for example only) with an outer diameter of 600 mm each and a length of 4000 mm. The catalyst in the ring-reactors is a spherical alumina-silicate catalyst (d = 4,5 mm), modified with 32 weight-percent of a rare earth metal oxide. Temperature and pressure in the filter-reactor is the same as in the fluidized- bed reactor. To avoid that too much catalyst fines are entrained with the fluidizing gas, for example in case of a disturbance of the fluidized-bed reactor, a cyclone (5) may be installed between the fluidized-bed reactor and the filter-reactor. Table 1 shows the gas composition before and after entering the filter-reactor (without inert components). Table 1 Component Before Filter-Reactor After Filter-Reactor (kmol/h) (kmol/h) Ammonia 1277,35 1277,30 Carbondioxide 567,32 567,11 Melamine 35,03 37,63 Isocyanic Acid 18, 77 3,19 Melem 0,16 >0,01 About 83percent of the isocyanic acid has been converted to melamine in the filter- reactor. This corresponds to a daily surplus production of 7,8 t of melamine. Melem and other higher molecular nitrogen compound could not be detected any more, as well the gas was free of catalyst dust. After leaving the filter-reactor the process gas can be cooled down to gener- ate high-pressure steam in the cooler (4). The extent of the cooling is limited by the partial pressure of the melamine in the gas after the filter reactor. **With** aluminum oxide, T= 400 °C , p= 2250.23Torr **Patent**; **CASALE CHEMICALS S.A.**; WO2005/68440; (2005); (A1) English View in Reaxys



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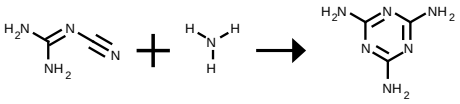
Yield	Conditions & References
	Example Name 1 Example 1; Under atmosphere, charged in a 5 L ball mill reactor were 141.94 g (1.0 moles) of diphosphorus pentoxide and 126.06 g (1.0 moles) of melamine (commercial name: Chang Chun Melamine), and the reactor was started after tightly closed and reacted at 150.deg. C. for 16 hours. After the reactor is cooled, the powdery melamine phosphate product is obtained. The thermal degradation of the powdery product at 260.deg. C. was measured with differential thermal/thermogravimetric analyzer. The loss of weight was 0.45percent by weight. The results of phosphorus content and dispersibility of the powdery melamine phosphate product were shown as in Table 1.; Comparative Example 1; Under atmosphere, charged in a twin-screw extruder were 70.97 g (0.5 moles) of diphosphorus pentoxide and 126.06 g (1.0 moles) of melamine (commercial name: Chang Chun Melamine), and a bar like product was formed at the extrusion temperature of 340.deg. C. After being cooled, the bar like product is pulverized, thereby a powdery melamine phosphate product is obtained. The thermal degradation of the powdery product at 260.deg. C. was measured with differential thermo/thermogravimetric analyzer. The loss of weight was 0.25percent by weight. The results of phosphorus content and dispersibility of the powdery melamine phosphate product were shown as in Table 1. **With** phosphorus pentoxide, Time= 16h, T= 150 - 340 °C , Product distribution / selectivity **Patent**; **Chang Chun Plastics Co., Ltd.**; US2007/49753; (2007); (A1) English View in Reaxys
	Example Name 2 Example 2; Under atmosphere, charged in a 5 L ball mill reactor were 70.97 g (0.5 moles) of diphosphorus pentoxide, 126.06 g (1.0 moles) of melamine (commercial name: Chang Chun Melamine) and 0.5 g of magnesium chloride catalyst, and the reactor was started after tightly closed and reacted at 100.deg. C. for 6 hours. After the reactor is cooled, the powdery melamine phosphate product is obtained. The thermal degradation of the powdery product at 260.deg. C. was measured with differential thermo/thermogravimetric analyzer. The loss of weight was 0.23percent by weight. The results of phosphorus content and dispersibility of the powdery melamine phosphate product were shown as in Table 1. **With** phosphorus pentoxide, magnesium chloride, Time= 6h, T= 100 °C , Product distribution / selectivity **Patent**; **Chang Chun Plastics Co., Ltd.**; US2007/49753; (2007); (A1) English View in Reaxys
	Example Name 3

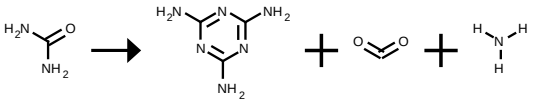
	Example 3; Under atmosphere, charged in a 5 L ball mill reactor were 88.99 g (0.5 moles) of pyrophosphoric acid, 126.06 g (1.0 moles) of melamine (commercial name: Chang Chun Melamine) and 0.5 g of magnesium chloride catalyst, and the reactor was started after tightly closed and reacted at 100.deg. C. for 6 hours. After the reactor is cooled, the powdery melamine phosphate product is obtained. The thermal degradation of the powdery product at 260.deg. C. was measured with differential thermo/thermogravimetric analyzer. The loss of weight was 0.43percent by weight. The results of phosphorus content and dispersibility of the powdery melamine phosphate product were shown as in Table 1. **With** (S)-pyrophosphoric acid, magnesium chloride, Time= 6h, T= 100 °C , Product distribution / selectivity **Patent**; **Chang Chun Plastics Co., Ltd.**; US2007/49753; (2007); (A1) English View in Reaxys



Rx-ID: 26486324 View in Reaxys

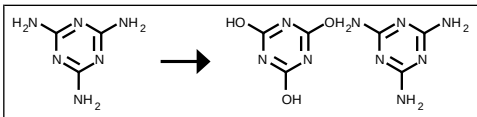
Yield	Conditions & References
98 %	High Pressure; heating of equiv. amts. of dicyanodiamide and liquid NH3 in autoclave at 160.deg.C at a pressure of 200 at **vol.** C: MVol.D1; 37.1.3.1, page 350 - 351 View in Reaxys **Patent**; **anonymous**; **Ciba**; CH189406; (1937); C. II; (1937); p. 3233 ; (from Gmelin) View in Reaxys
	in further solvent(s), heating in isobutanol **vol.** C: MVol.D1; 37.1.3.1, page 350 - 351 View in Reaxys **anonymous Casella**; BIOS Final Rept. Nr. 1754 (1948) 1/21 ; (from Gmelin) View in Reaxys
<59	High Pressure; using Sn-Mg alloy for absorption of heat of reactn. **Nishida, H.; Suzuki, A.; Ohyama, K.**; Tokyo Kogyo Shikensho Hokoku; **vol.** 48; (1953); p. 231 - 240 View in Reaxys **vol.** C: MVol.D1; 37.1.3.1, page 350 - 351 ; (from Gmelin) View in Reaxys
	at pressure **vol.** C: MVol.D1; 37.1.2, page 348 - 350 View in Reaxys **Bieling, H.; Raduechel, M.; Wenzel, G.; Beyer, H.**; J. Prakt. Chem. (4); **vol.** 28; (1965); p. 325 - 340 ; (from Gmelin) View in Reaxys
	in methanol, heating in autoclave **Hoover, M. M.**; Chem. Eng.; **vol.** 57; nb. 4; (1950); p. 132 - 139 View in Reaxys **vol.** C: MVol.D1; 37.1.3.1, page 350 - 351 ; (from Gmelin) View in Reaxys
	in tetrahydrofuran, High Pressure; heating in autoclave at 375 - 400.deg.F; at a pressure of 105.5 at **Nishida, H.; Suzuki, A.; Ohyama, K.**; Tokyo Kogyo Shikensho Hokoku; **vol.** 48; (1953); p. 231 - 240 View in Reaxys **vol.** C: MVol.D1; 37.1.3.1, page 350 - 351 ; (from Gmelin) View in Reaxys
	in ethylene glycol dimethyl ether, High Pressure; heating in autoclave at 375 - 400.deg.F; at a pressure of 105.5 at **Nishida, H.; Suzuki, A.; Ohyama, K.**; Tokyo Kogyo Shikensho Hokoku; **vol.** 48; (1953); p. 231 - 240

	View in Reaxys **vol.** C: MVol.D1; 37.1.3.1, page 350 - 351 ; (from Gmelin) View in Reaxys
	in 1,4-dioxane, High Pressure; heating in autoclave at 375 - 400.deg.F; at a pressure of 105.5 at **Nishida, H.; Suzuki, A.; Ohyama, K.**; Tokyo Kogyo Shikensho Hokoku; **vol.** 48; (1953); p. 231 - 240 View in Reaxys **vol.** C: MVol.D1; 37.1.3.1, page 350 - 350 ; (from Gmelin) View in Reaxys



Rx-ID: 22826913 View in Reaxys

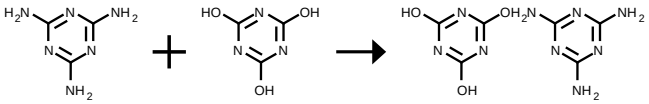
Yield	Conditions & References
	T= 200 °C , p= 112511Torr **Patent**; **DSM, N.V.**; US6344588; (2002); (B1) English View in Reaxys
	Example Title DETAILED DESCRIPTION OF THE DRAWING A gas stream consisting of NH3 and CO2 leaves the gas scrubber (2) via line (7) to an adjoining urea plant. In the reaction vessel (3) the urea is reacted at 390.deg. C.-410.deg. C. and 8-17 MPa to NH3, CO2 and melamine. The liquid melamine is separated from the reaction gases on the top of the melamine reactor (3) and in the connected gas-separator (4). To strip off the last traces of CO2 from the melamine melt, pressurised NH3 is fed via line (9) to the gas separator (4). , T= 390 - 410 °C , p= 60006 - 127513Torr **Patent**; **Ripperger, Willi**; US2004/10144; (2004); (A1) English View in Reaxys



Rx-ID: 24793033 View in Reaxys

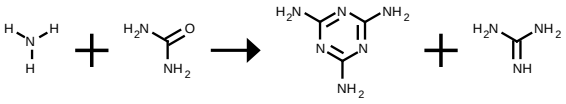
Yield	Conditions & References
99.5 %	Example Name 5 Example 5; EPO <DP n="16"/>In a 250 ml glass beaker equipped with a magnet stirrer and an electrical heater 83.6 g SMA 1000 P, obtainable from Cray Valley, are added with stirring to 54.7 g potassium hydroxide (85percent) solution obtainable from Merck and diluted with 334.5 g water. The solution is heated to 50-60^{0}C and stirred until it becomes clear. Evolution of heat resulting from an exothermal reaction is observed. 620 g cyanuric acid (1-1440) obtainable in big lumps from Nissan are loaded into a 1.5 l one-shaft kneader (LIST DTB 1.5) equipped with a reflux cooler and hea.not. ting. The lumps are crushed in the kneader within 10 minutes. 605.8 g Melamine obtainable from DSM are added with stirring. The reaction mass is heated to 95.deg.C up to a maximum jacket temperature of 120.deg.C. As soon as a temperature of 95.deg.C is reached, a mixture of 47.3 g of the K-SMA solution described above, diluted with 138.1 g water, is added within 1 hour. This amounts to a concentration of 1percent K-SMA in respect to melamine cyanurate. After the feed, the reaction mass is kept at reflux with a jacket temperature of 120^{0}C during 4 hours. The reflux cooler is then replaced with a descending cooler and a receiver connected to a vacuum pump. The jacket temperature is increased to 150^{0}C, and the vacuum reduced slowly to 20-30 mbar. As soon as a temperature of 120.deg.C in the kneader is reached, the drying process is finished. The reaction mass is unloaded and analyzed. 1231.6 g product corresponding to 99.5percent yield is obtained. The product is white, not dusty and free flowing. No crusts are observed in the kneader, the stirrer and or the inspection window. The conversion is analyzed by thermogravimetrical analysis (TGA), in which free melamine and cyanuric acid can be detected by weight loss between 200.deg. and 245.deg.C. The heating rate of the TGA equipment is 3.deg.C per minute. The content of melamine and cyanuric acid is 0percent. The puritiy of the melamine cyanurate is 98.8percent. The particle size is determined in a 1percent suspension in water by a Sympatex Helos (H0017) equipment. Ultrasonic radiation is applied for 3 minutes before the measurement. 90percent of the particles have a diameter of less than 5.9 micron and 99percent of the particles a diameter below 32.2 microns. Fine particles of melamine cyanurate can be produced even with unmilled starting materials at moderate

	temperatures and at high concentrations by using K-SMA as additive. The postassium content of the product amounted to 0.32percent. **Stage 1:**, Time= 0.166667h **Stage 2: With** K-SMA **in** water, Time= 5h, T= 95 - 120 °C , Heating / reflux, Product distribution / selectivity **Patent**; **CIBA SPECIALTY CHEMICALS HOLDING INC.**; WO2006/40289; (2006); (A1) English View in Reaxys
	Example Name 3; 4 Example 3; 64.5 kg cyanuric acid, which has been milled to an average particles size of 100 µ. are added in equimolar amounts to a DIOSNA high speed mixer. 18.0 kg water is added to form the di- hydrate of cyanuric acid. The mixture is stirred at room temperature for a time period of 15- 30 min. to allow the formation of the dihydrate, which is obtained in the form of a dry powder. The equimolar amount of 63.0 kg melamine, which has been milled to an average particle size of 110 µ, is added. The mixture is heated to about 1000C and vigorously stirred with an .(C).Ultraturrax (IKA) mixer. After 4 h the temperature is increased further until the melamine cyanurate obtained is sufficiently dried. The product is subsequently removed from the reac.not. tor. The small particles obtained are characterized by a particle size dis-tribution, wherein 95percent of a selection has a particle diameter of less than 1 µ, and the remaining particles are not larger than 5 µ (lighcattering Coulter LS-230 particle sizer). **Stage 1: in** water, Time= 0.166667 - 30h, T= 20 °C **Stage 2: in** water, Time= 4h, T= 100 °C , Product distribution / selectivity **Patent**; **CIBA SPECIALTY CHEMICALS HOLDING INC.**; WO2006/40289; (2006); (A1) English View in Reaxys



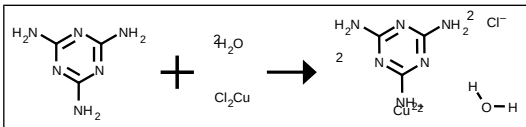
Rx-ID: 24793034 View in Reaxys

Yield	Conditions & References
	Example Name 1 Example 1; 63,0 kg melamine and 64,5 kg cyanuric acid, which have been milled to an average particle size of 110 µ, are added in equimolar amounts to a DRAIS reactor. The mixture is heated with stirring to 75.deg.C. An additive dispersion containing 1percent SMA 1000 (Elf Atofina), which has been made basic by the addition of 1percent KOH, is added in an amount to produce a slurry of 55percent by weight of solids content. The reaction mixture is stirred for 120 min, and the slurry obtained is dried by spray drying at 140^{0}C.The small particles obtained are characterized by a particle size distribution, wherein 95percent of a selection has a particle diameter of less than 1 µ and the remaining particles are not larger than 5 µ (light-scattering Coulter LS-230 particle sizer). **With** potassium hydroxide **in** water, Time= 2h, T= 75 °C , Product distribution / selectivity **Patent**; **CIBA SPECIALTY CHEMICALS HOLDING INC.**; WO2006/40289; (2006); (A1) English View in Reaxys
	Example Name 6 Example 6; Analogous to Example 3 the amount of 620 g of cyanuric acid is crushed in a kneader and mixed with 605.8 g melamine. After heating to 95.deg.C, 23.6 g of the K-SMA solution described in Example 5 is diluted with 138.1 g water and fed within one hour to the reaction mass under stirring. The solids content in the reaction mass after adding the feed amounts to 87.0percent, and the content of K-SMA in respect to the solid content in the reaction mass is 0.5percent. The EPO <DP n="17"/>reaction mass is kept at 98-100.deg.C with stirring for another 5 hours. The reaction mass is dried at 120^{0}C and 30 mbar, cooled to 80^{0}C, unloaded and analyzed. The unloaded product has a weight of 1229.3 g which corresponds to 99.8percent yield. The product purity is 99.4percent and no free cyanuric acid and melamine is detectable by TGA. Analysis of particle size distri.not. bution measured with the same method as in Ex-ample 5 shows that 90percent of the particles have a diameter smaller than 18.1 microns and 99percent less than 37.3 microns. **With** K-SMA **in** water, Time= 6h, T= 95 - 100 °C , Product distribution / selectivity **Patent**; **CIBA SPECIALTY CHEMICALS HOLDING INC.**; WO2006/40289; (2006); (A1) English View in Reaxys



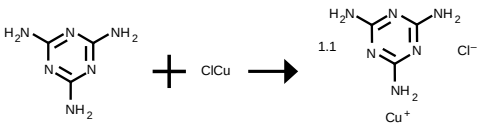
Rx-ID: 26105277 View in Reaxys

Yield	Conditions & References
	With anhydrous aluminium sulphate, ammonium chloride **in** ammonia, High Pressure; ratio of products depends on ratio of urea:NH4Cl; 70 atm **Boivin, J.**; Canadian Journal of Chemistry; **vol.** 33; (1955); p. 1467 - 1472 View in Reaxys **vol.** C: MVol.D1; 45.11.4, page 449 - 450 ; (from Gmelin) View in Reaxys



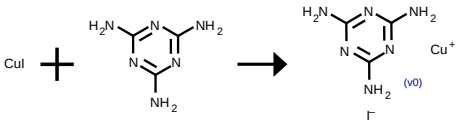
Rx-ID: 27478971 View in Reaxys

Yield	Conditions & References
92.5 %	**in** butan-1-ol, Cu compd. dissolved in Ar-degassed BuOH, melamine added, suspn. sealed in glass tube, heated with stirring to 100.deg.C for 14 h; filtered, washed with MeCN and Et2O, dried in vac.; elem. anal. **Wiles, Austin B.; Bozzuto, Daniel; Cahill, Christopher L.; Pike, Robert D.**; Polyhedron; **vol.** 25; (2006); p. 776 - 782 ; (from Gmelin) View in Reaxys



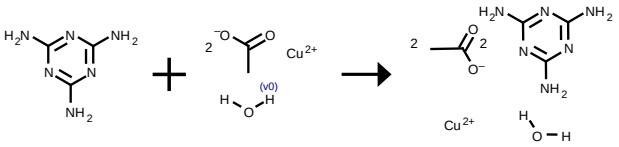
Rx-ID: 27478976 View in Reaxys

Yield	Conditions & References
87.5 %	**in** acetonitrile, Cu compd. dissolved in Ar-degassed MeCN, filtered, melamine added, suspn. sealed in glass tube, heated with stirring to 100.deg.C for 20 h; filtered, washed with MeCN and Et2O, dried in vac.; elem. anal. **Wiles, Austin B.; Bozzuto, Daniel; Cahill, Christopher L.; Pike, Robert D.**; Polyhedron; **vol.** 25; (2006); p. 776 - 782 ; (from Gmelin) View in Reaxys



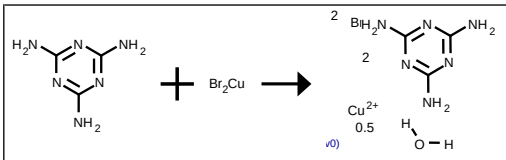
Rx-ID: 27478977 View in Reaxys

Yield	Conditions & References
91.6 %	**in** acetonitrile, Cu compd. dissolved in Ar-degassed MeCN, filtered, melamine added, suspn. sealed in glass tube, heated with stirring to 100.deg.C for 20 h; filtered, washed with MeCN and Et2O, dried in vac.; elem. anal. **Wiles, Austin B.; Bozzuto, Daniel; Cahill, Christopher L.; Pike, Robert D.**; Polyhedron; **vol.** 25; (2006); p. 776 - 782 ; (from Gmelin) View in Reaxys



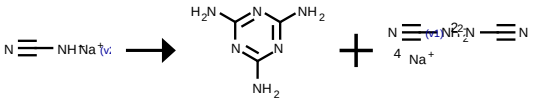
Rx-ID: 27478980 View in Reaxys

Yield	Conditions & References
85.5 %	**in** acetonitrile, Cu compd. dissolved in Ar-degassed MeCN, melamine added, suspn. sealed in glass tube, heated with stirring to 100.deg.C for 14 h; filtered, washed with MeCN and Et2O, dried in vac.; elem. anal. **Wiles, Austin B.; Bozzuto, Daniel; Cahill, Christopher L.; Pike, Robert D.**; Polyhedron; **vol.** 25; (2006); p. 776 - 782 ; (from Gmelin) View in Reaxys



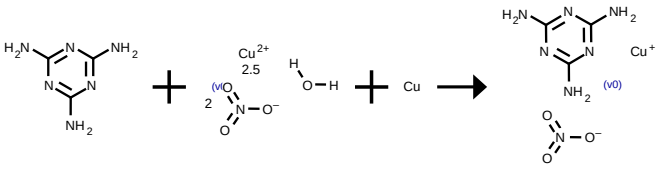
Rx-ID: 27478982 View in Reaxys

Yield	Conditions & References
99.6 %	**in** acetonitrile, Cu compd. dissolved in Ar-degassed MeCN, melamine added, suspn. sealed in glass tube, heated with stirring to 100.deg.C for 14 h; filtered, washed with MeCN and Et2O, dried in vac.; elem. anal. **Wiles, Austin B.; Bozzuto, Daniel; Cahill, Christopher L.; Pike, Robert D.**; Polyhedron; **vol.** 25; (2006); p. 776 - 782 ; (from Gmelin) View in Reaxys



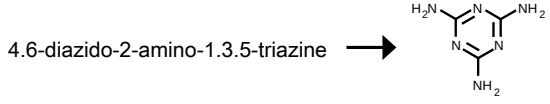
Rx-ID: 4166439 View in Reaxys

Yield	Conditions & References
98 %	**in** neat (no solvent), Time= 18h, T= 201.9 °C , p= 0.0008Torr **Harper, Alexander; Hubberstey, Peter**; Journal of Chemical Research, Miniprint; nb. 7; (1989); p. 1452 - 1479 View in Reaxys



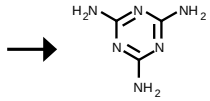
Rx-ID: 27478978 View in Reaxys

Yield	Conditions & References
93.5 %	**in** acetonitrile, Cu compd. reacted with Cu wool in Ar-degassed MeCN, excess Cu removed, melamine added, suspn. sealed in glass tube, heated with stirring to 100.deg.C for 20 h; filtered, washed with MeCN and Et2O, dried in vac.; elem. anal. **Wiles, Austin B.; Bozzuto, Daniel; Cahill, Christopher L.; Pike, Robert D.**; Polyhedron; **vol.** 25; (2006); p. 776 - 782 ; (from Gmelin) View in Reaxys



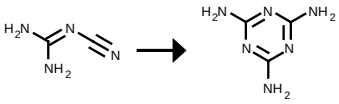
Rx-ID: 5426138 View in Reaxys

Yield	Conditions & References
	With ethanol, hydrogen sulfide, Reduktion **Hart**; Journal of the American Chemical Society; **vol.** 50; (1928); p. 1929 View in Reaxys

cyanuric acid triazide 

Rx-ID: 5426147 View in Reaxys

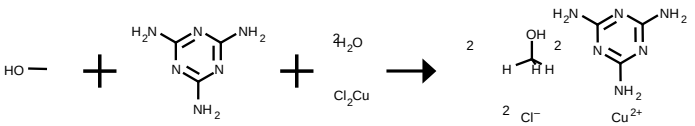
Yield	Conditions & References
	With ethanol, hydrogen sulfide, Reduktion **Hart**; Journal of the American Chemical Society; **vol.** 50; (1928); p. 1929 View in Reaxys



Rx-ID: 26486290 View in Reaxys

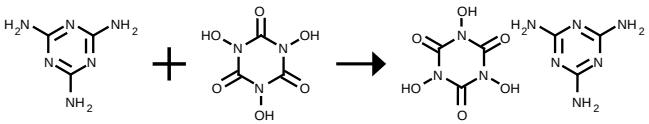
Yield	Conditions & References
92 %	**With** ammonia, High Pressure; at degree of charge of autoclave = 100percent; yield depends on degree of charge of autoclave as follows: 44, 52, 77, 88.5 and 92percent at degree of charge of 8, 17, 33, 67 and 100percent respectively **vol.** C: MVol.D1; 37.1.3.1, page 350 - 351 View in Reaxys **Patent**; **anonymous**; **Ciba**; CH200244; (1938); C. I; (1939); p. 3800 ; (from Gmelin) View in Reaxys
71 %	**in** further solvent(s), heating in benzylamine **Kretov, A. E.; Shmeleva, Zh. V.**; Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation); **vol.** 35; (1962); p. 852 - 855; Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation); **vol.** 35; (1962); p. 884 - 887 View in Reaxys **vol.** C: MVol.D1; 37.1.3.1, page 350 - 351 ; (from Gmelin) View in Reaxys
	normal and higher pressure, above melting point **Takimoto, M.; Funakawa, T.**; Kogyo Kagaku Zasshi; **vol.** 66; (1963); p. 797 - 803; C.A.; **vol.** 60; (1964); p. 5499 View in Reaxys **vol.** C: MVol.D1; 24.9.2, page 288 - 288 ; (from Gmelin) View in Reaxys
	With potassium hydroxide **in** further solvent(s), Kinetics, at 110 - 150.deg.C in diethylene glycol monoethyl ether **Kawasaki, A.; Ogata, Y.**; Tetrahedron; **vol.** 22; (1966); p. 1267 - 1274 View in Reaxys **vol.** C: MVol.D1; 37.1.2, page 348 - 350 ; (from Gmelin) View in Reaxys
	byproducts: NH3; heating above melting point **Drechsel, E.**; J. Prakt. Chem. (2); **vol.** 13; (1876); p. 330 - 333 View in Reaxys **vol.** C: MVol.D1; 24.9.2, page 288 - 288 View in Reaxys **Haag, J.**; Liebigs Annalen der Chemie; **vol.** 122; (1862); p. 22 - 33 ; (from Gmelin) View in Reaxys
80-90	**With** ammonia, aluminum oxide **in** neat (no solvent), passing NH3 in mixture of dicyanodiamide and Al2O3; at 180.deg.C; 4 h; ratio of dicyanodiamide : Al2O3 = 1 : 0.6; extn. with H2O

	Suszer, A.; Harati, I.; Radescu, R.; Rev. Khim. (Bucharest); **vol.** 9; (1958); p. 509 - 510 View in Reaxys **vol.** C: MVol.D1; 37.1.3.1, page 350 - 351 ; (from Gmelin) View in Reaxys
	With ammonia **in** neat (no solvent), High Pressure; heating in autoclave under mixture of N2 and NH3; dissolving in hot water; filtering; cooling down **Kaess, F.; Vogel E.**; Chem. Ingr. Tech.; **vol.** 26; (1954); p. 380 - 383 View in Reaxys **vol.** C: MVol.D1; 37.1.3.1, page 350 - 351 ; (from Gmelin) View in Reaxys
56-70	**in** further solvent(s), heating in N,N-diethylaniline **Kretov, A. E.; Shmeleva, Zh. V.**; Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation); **vol.** 35; (1962); p. 852 - 855; Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation); **vol.** 35; (1962); p. 884 - 887 View in Reaxys **vol.** C: MVol.D1; 37.1.3.1, page 350 - 351 ; (from Gmelin) View in Reaxys
56-70	**in** further solvent(s), heating in N,N-dimethylaniline **Kretov, A. E.; Shmeleva, Zh. V.**; Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation); **vol.** 35; (1962); p. 852 - 855; Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation); **vol.** 35; (1962); p. 884 - 887 View in Reaxys **vol.** C: MVol.D1; 37.1.3.1, page 350 - 351 ; (from Gmelin) View in Reaxys
56-70	**in** quinoline, heating **Kretov, A. E.; Shmeleva, Zh. V.**; Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation); **vol.** 35; (1962); p. 852 - 855; Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation); **vol.** 35; (1962); p. 884 - 887 View in Reaxys **vol.** C: MVol.D1; 37.1.3.1, page 350 - 351 ; (from Gmelin) View in Reaxys
97.5-98.5	**in** ammonia, High Pressure; 50percent soln. of dicyanodiamide in liquid NH3; 500 - 550.deg.C **Suszer, A.; Harati, I.; Radescu, R.**; Rev. Khim. (Bucharest); **vol.** 9; (1958); p. 509 - 510 View in Reaxys **vol.** C: MVol.D1; 37.1.3.1, page 350 - 351 ; (from Gmelin) View in Reaxys
	in ammonia, High Pressure; 50percent soln. of dicyanodiamide in liquid NH3; heating at a pressure of 150 at **Gol'dberg, N. A.; Zagranichnyi, V. I.**; Doklady Akademii Nauk SSSR; **vol.** 124; (1959); p. 635 - 637 View in Reaxys **Gol'dberg, N. A.; Zagranichnyi, V. I.**; Khimicheskaya Promyshlennost (St. Petersburg, Russian Federation); (1960); p. 624 - 626 View in Reaxys **vol.** C: MVol.D1; 37.1.3.1, page 350 - 351 ; (from Gmelin) View in Reaxys
	other Radiation; neutron irradiation **Lapp, T. W.; Kiser, R. W.**; Journal of Physical Chemistry; **vol.** 66; (1962); p. 152 - 154 View in Reaxys **vol.** C: MVol.D1; 37.1.1, page 347 - 348 ; (from Gmelin) View in Reaxys



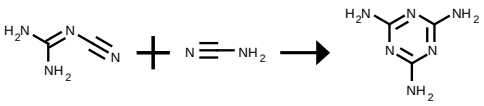
Rx-ID: 27478974 View in Reaxys

Yield	Conditions & References
77.0 %	**in** methanol, Cu compd. dissolved in Ar-degassed MeOH, melamine added, suspn. sealed in glass tube, heated with stirring to 100.deg.C for 14 h; filtered, washed with MeCN and Et2O, dried in vac.; elem. anal. **Wiles, Austin B.; Bozzuto, Daniel; Cahill, Christopher L.; Pike, Robert D.**; Polyhedron; **vol.** 25; (2006); p. 776 - 782 ; (from Gmelin) View in Reaxys



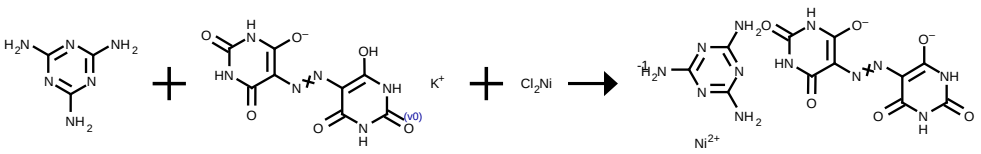
Rx-ID: 28643964 View in Reaxys

Yield	Conditions & References
76 %	**in** water, T= 0 - 35 °C **Golovina, N. I.; Nechiporenko, G. N.; Nemtsev, G. G.; Zyuzin, I. N.; Roshchupkin, V. P.; Lempert, D. B.; Ovchinnikov, I. V.; Manelis, G. B.**; Russian Journal of Applied Chemistry; **vol.** 81; nb. 10; (2008); p. 1740 - 1746 View in Reaxys



Rx-ID: 26486323 View in Reaxys

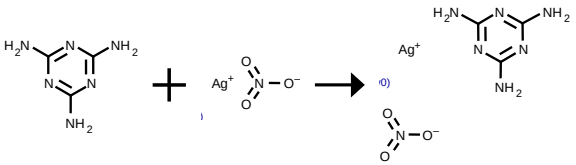
Yield	Conditions & References
	With potassium hydroxide **in** further solvent(s), Kinetics, at 110 - 150.deg.C in diethylene glycol monoethyl ether **Kawasaki, A.; Ogata, Y.**; Tetrahedron; **vol.** 22; (1966); p. 1267 - 1274 View in Reaxys **vol.** C: MVol.D1; 37.1.2, page 348 - 350 ; (from Gmelin) View in Reaxys



Rx-ID: 29246175 View in Reaxys

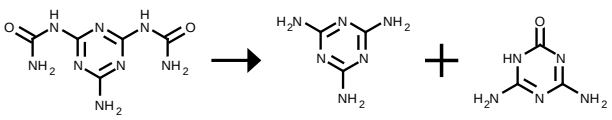
Yield	Conditions & References
	Example Name 1 Inventive Example 1; 425 g of water-moist paste of the α-form of azobarbituric acid monopotassium salt.x.1 H_2O, prepared according to Example 1 of EP 1086992, with a solids content of 40percent, corresponding to 170 g dry (0.5 mol), are stirred in 5000 ml of distilled water with a laboratory stirrer and heated to 95.deg. C.42 g of 10percent strength potassium hydroxide solution are added dropwise (0.075 mol; 15percent based on azobarbituric monopotassium salt employed) and the mixture is stirred for 30 minutes. This gives a mixture in the molar proportion of 85 parts of monopotassium salt and 15 parts of dipotassium salt. 1060 g of aqueous 6.5percent strength nickel chloride solution are added over the course of 30 minutes. Thereafter 126 g of melamine (1 mol) are added and stirring is continued at 95.deg. C. for 1.5 hours. The pH is then adjusted to 5.5 using potassium hydroxide solution. The product is subsequently isolated on a suction filter, washed until electrolyte-free, dried in a vacuum drying cabinet at 80.deg. C. and ground.The specific surface area is determined in accordance with DIN 66131: Determination of the specific surface area of solids by gas

	adsorption by the method of Brunauer, Emmett and Teller (B.E.T.).The product has a BET surface area of 129 m^2/g.Repeat syntheses show minor variation (121 m^2/g-134 m^2/g). **Stage 1: With** potassium hydroxide **in** water, T= 95 °C **Stage 2: in** water, Time= 2h, T= 95 °C , Product distribution / selectivity **Patent**; **LANXESS Deutschland GmbH**; US7682444; (2010); (B2) English View in Reaxys



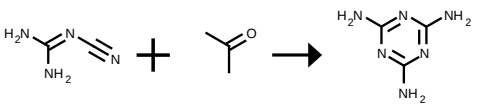
Rx-ID: 26608538 View in Reaxys

Yield	Conditions & References
	in water, warm soln.; recrystn. from water **Hofmann, A. W.**; Ber. Dtsch. Chem. Ges.; **vol.** 18; (1885); p. 2755 - 2781 View in Reaxys **Liebig, J.**; Liebigs Annalen der Chemie; **vol.** 21; (1834); p. 1 - 47 View in Reaxys **Wislicenus, J.**; Ber. Dtsch. Chem. Ges.; **vol.** 7; (1874); p. 286 - 298 View in Reaxys **vol.** Ag: MVol.B6; 1.5.3.2, page 187 - 191 ; (from Gmelin) View in Reaxys
	in not given **Sivashankar, K.; Ranganathan, A.; Pedireddi, V. R.; Rao, C. N. R.**; Journal of Molecular Structure; **vol.** 559; (2001); p. 41 - 48 ; (from Gmelin) View in Reaxys
	in water, 1:1 molar ratio **Schabi, Muhamet; Meyer, Gerd**; Zeitschrift fuer Anorganische und Allgemeine Chemie; **vol.** 630; (2004); p. 1758 - 1758 ; (from Gmelin) View in Reaxys



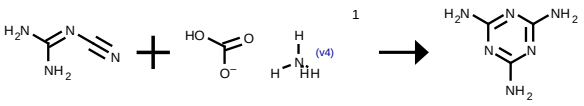
Rx-ID: 3820712 View in Reaxys

Yield	Conditions & References
33 %, 9 %	**With** alkaline hydrolysis **Iio, Kokoro; Ichikawa, Eiichi**; Bulletin of the Chemical Society of Japan; **vol.** 57; nb. 4; (1984); p. 2009 - 2010 View in Reaxys
9 %, 33 %	**With** alkaline hydrolysis **Iio, Kokoro; Ichikawa, Eiichi**; Bulletin of the Chemical Society of Japan; **vol.** 57; nb. 4; (1984); p. 2009 - 2010 View in Reaxys



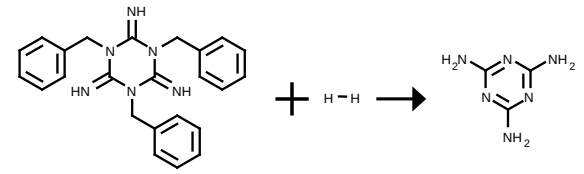
Rx-ID: 26412818 View in Reaxys

Yield	Conditions & References
	With hydrogenchloride **in** ethanol, at room temp. **Yamada, M.; Ichikawa, E.; Odo, K.**; Yuki Gosei Kagaku Kyokai Shi; **vol.** 21; (1963); p. 946 - 951; C.A.; **vol.** 60; (1964); p. 4146 View in Reaxys **vol.** C: MVol.D1; 37.1.1, page 347 - 348 ; (from Gmelin) View in Reaxys



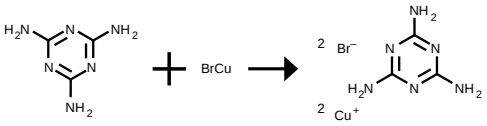
Rx-ID: 26461334 View in Reaxys

Yield	Conditions & References
	With ammonia **in** water, Kinetics, byproducts: guanidinium carbonate, urea; 100-150.deg.C under pressure **Kazarnovskii, S. N.; Moshchanskaya, N. I.**; Zhurnal Obshchei Khimii; **vol.** 27; (1957); p. 3423 - 3426; Zhurnal Obshchei Khimii; **vol.** 27; (1957); p. 3386 - 3390 View in Reaxys **vol.** C: MVol.D1; 24.9.4.1, page 289 - 290 ; (from Gmelin) View in Reaxys



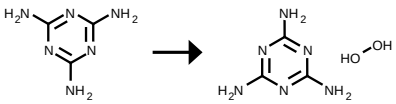
Rx-ID: 26478335 View in Reaxys

Yield	Conditions & References
94 %	**With** propane-1,3-diol **in** ethanol, redn. **Birkofer, L.**; Ber. Dtsch. Chem. Ges. B; **vol.** 75; (1942); p. 429 - 441 View in Reaxys **vol.** C: MVol.D1; 37.1.1, page 347 - 348 ; (from Gmelin) View in Reaxys



Rx-ID: 27563182 View in Reaxys

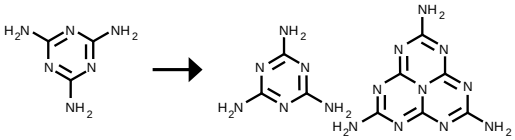
Yield	Conditions & References
60 %	**With** aluminum isopropoxide **in** water, High Pressure; heating mixt. of copper compd., melamine, aluminium compd. and water at 160.deg.C for 60 h; cooling over 60 h, isolation of crystals, elem. anal. **Zhang, Lei; Zhang, Jian; Li, Zhao-Ji; Cheng, Jian-Kai; Yin, Pei-Xiu; Yao, Yuan-Gen**; Inorganic Chemistry; **vol.** 46; (2007); p. 5838 - 5840 ; (from Gmelin) View in Reaxys



Rx-ID: 29285266 View in Reaxys

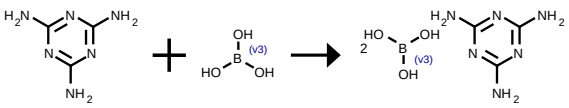
Yield	Conditions & References
	With dihydrogen peroxide **in** water, Time= 0.5h, T= 60 °C

	Chehardoli, Gholamabbas; Zolfigol, Mohammad Ali; Phosphorus, Sulfur and Silicon and the Related Elements; **vol.** 185; nb. 1; (2010); p. 193 - 203 View in Reaxys



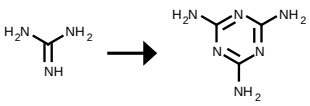
Rx-ID: 29384750 View in Reaxys

Yield	Conditions & References
	With europium, mercury, T= 20 - 370 °C , Sealed tube **Sattler, Andreas; Pagano, Sandro; Zeuner, Martin; Zurawski, Alexander; Mueller-Buschbaum, Klaus; Schnick, Wolfgang; Gunzelmann, Daniel; Senker, Juergen**; Chemistry--A European Journal; **vol.** 15; nb. 47; (2009); p. 13161 - 13170 View in Reaxys



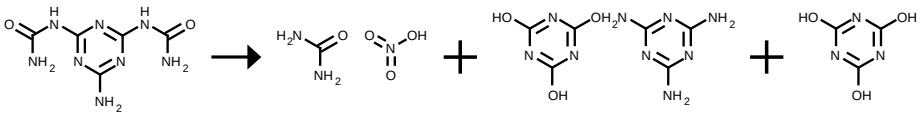
Rx-ID: 27131681 View in Reaxys

Yield	Conditions & References
	in water, High Pressure; H3BO3 dissolved in H2O; melamine added with stirring; pH = 7; stirred for 30 min; heated at 150.deg.C for 2 ds in autoclave; cooled for 4 h; filtered; washed (H2O) **Roy, Abhijit; Choudhury, Amitava; Rao, C. N. R.**; Journal of Molecular Structure; **vol.** 613; (2002); p. 61 - 66 ; (from Gmelin) View in Reaxys
	in water, melamine dissolved in boiling water, soln. of H3BO3 added under stirring; cooled to room temp., ppt. washed with water, dried at 70 .deg.C for 24 h **Shuba, Roman; Chen, I-Wei**; Journal of the American Ceramic Society; **vol.** 89; (2006); p. 2147 - 2153 ; (from Gmelin) View in Reaxys
	in water, pptd. by cooling the hot soln. of compds. **Aoki, Kaoru; Tanaka, Susumu; Tomitani, Yukiko; Yuda, Masahiro; Shimada, Mio; Oda, Kohei**; Chemistry Letters; (2002); p. 112 - 113 ; (from Gmelin) View in Reaxys



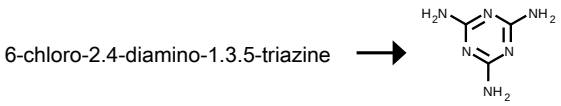
Rx-ID: 644839 View in Reaxys

Yield	Conditions & References
	With hydrogenchloride, T= 180 - 250 °C **Smolka; Friedreich**; Monatshefte fuer Chemie; **vol.** 10; (1889); p. 95; Monatshefte fuer Chemie; **vol.** 11; (1890); p. 45 View in Reaxys
	byproducts: NH3; heating at 160.deg.C **Krall, H.**; Journal of the Chemical Society; (1915); p. 1396 - 1405 View in Reaxys **vol.** C: MVol.D1; 49.5.2, page 472 - 472 ; (from Gmelin) View in Reaxys



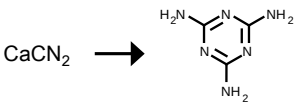
Rx-ID: 3820713 View in Reaxys

Yield	Conditions & References
34 %, 70 %, 34 %	**With** hydrogenchloride, Heating **Iio, Kokoro; Ichikawa, Eiichi**; Bulletin of the Chemical Society of Japan; **vol.** 57; nb. 4; (1984); p. 2009 - 2010 View in Reaxys



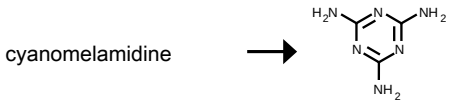
Rx-ID: 5426142 View in Reaxys

Yield	Conditions & References
	With ammonia, T= 100 °C **Hofmann**; Chemische Berichte; **vol.** 18; (1885); p. 2773 View in Reaxys **Klason**; Journal fuer Praktische Chemie (Leipzig); **vol.** <2>33; (1886); p. 293 View in Reaxys **Lemoult**; Annales de Chimie (Cachan, France); **vol.** <7>16; (1899); p. 347; Comptes Rendus Hebdomadaires des Seances de l'Academie des Sciences; **vol.** 125; (1897); p. 824 View in Reaxys



Rx-ID: 5426143 View in Reaxys

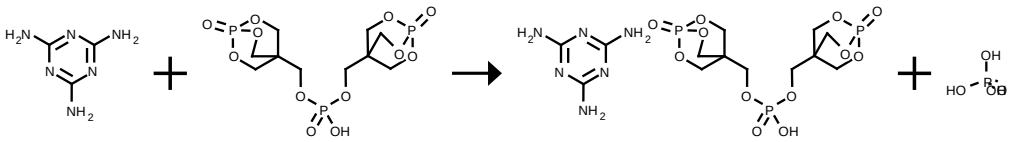
Yield	Conditions & References
	With ammonia, ammonium chloride, T= 400 °C **Patent**; **Monsanto Chem. Co.**; US2556126; (1949) View in Reaxys
	With carbon dioxide, ammonia, T= 375 °C **Patent**; **Am. Cyanamid Co.**; US2658891; (1950) View in Reaxys



Rx-ID: 5426146 View in Reaxys

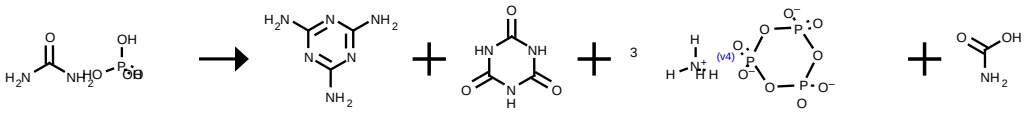
Yield	Conditions & References
	With potassium permanganate **Byk**; Journal fuer Praktische Chemie (Leipzig); **vol.** <2>20; (1879); p. 347 View in Reaxys
	With hydrogenchloride, T= 100 °C **Byk**; Journal fuer Praktische Chemie (Leipzig); **vol.** <2>20; (1879); p. 347 View in Reaxys
	With sulfuric acid, T= 100 °C **Byk**; Journal fuer Praktische Chemie (Leipzig); **vol.** <2>20; (1879); p. 347

View in Reaxys



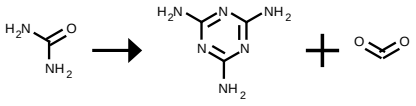
Rx-ID: 25756259 View in Reaxys

Yield	Conditions & References
	Example Name 3 A one-liter ball mill as a reactor and two-centimeter diameter ceramic balls are chosen. The ball mill bowl and balls can be preheated to 80 to 150.deg. C., preferably to 90 to 100.deg. C. Then, add 13.6 gram PE and 8.5 gram P_2O_5 to the ball mill in a proper order. Put the ceramic ball into the ball mill and seal it and then start mechanical grinding for 1 hours. Add water and melamine into the ball mill to grind for 60 minutes. The reaction product includes 79.2percent of the main product and 20.8percent of phosphoric acid. The yield is greater than 95percent.Another embodiment is provided for preparing the PEBM. A one liter ball mill as a reactor and two-centimeter diameter ceramic balls are used. The ball mill bowl and balls can be preheated to 80 to 150.deg. C., preferably to 110.deg. C. for half an hour. Then, add 16 gram PE and 32 gram P_2O_5 to the ball mill in a proper order. Seal it and then start mechanical grinding. Sample it after one hour reaction by running ^{31}P-NMR for determining the reaction extent. The chemical shift of phosphoric acid is at Oppm and the chemical shift of the intermediate is at -6 ppm. Next, add 500 milliliters of water and 63 gram of melamine into the ball mill to grind for 60 minutes. After that, decompress and filter it then rinse it, and finally bake it at 160.deg. C. in an oven. The yield is 96percent. **in** water, Time= 1h, Product distribution / selectivity **Patent**; **Chung Shan Institute of Science and Technology**; US7250509; (2007); (B1) English View in Reaxys



Rx-ID: 26390139 View in Reaxys

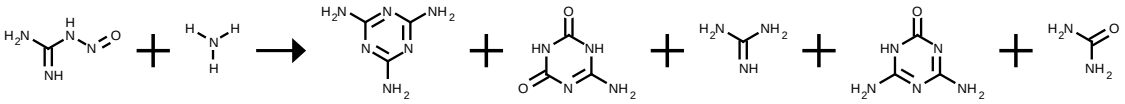
Yield	Conditions & References
	With ammonium nitrate, urea **in** neat (no solvent), byproducts: NH3, CO2; heating (molar ration (NH2)2CO:H2PO4(1-) >3, 210.deg.C, 2 h); extn. (MeOH or MeOH/H2O (50/50)), recrystn. (MeOH/H2O or acetone/H2O) **Schuelke, U.; Kayser, R.; Neumann, P.**; Zeitschrift fuer Anorganische und Allgemeine Chemie; **vol.** 576; (1989); p. 272 - 280 ; (from Gmelin) View in Reaxys



Rx-ID: 26402059 View in Reaxys

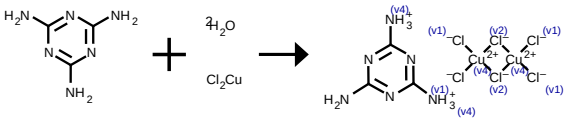
Yield	Conditions & References
	With ammonia, anhydrous urea; 350.deg.C; strongly exotermic react.; filtering; washing with H2O; drying; purity: 99.88 to 99.95percent **Hoeckelmann, H. Schulze; Schmidt, A.**; Chem. Anlagen Verfahren; nb. 5; (1968); p. 33 - 39 View in Reaxys **Schmidt, A.**; Oesterr. Chem. - Ztg.; **vol.** 68; nb. 6; (1967); p. 175 - 179 View in Reaxys **Schmidt, A.**; Chem. Ingr. Tech.; **vol.** 38; (1966); p. 1140 - 1144 View in Reaxys **Schmidt, A.**; Hydrocarbon Process. Petrol. Refiner; **vol.** 45; (1966); p. 146 - 150 View in Reaxys **Weinrotter, F.**; Chem. Eng.; **vol.** 72; nb. 21; (1965); p. 180 - 182 View in Reaxys

vol. C: MVol.D1; 37.1.3.2, page 351 - 353 ; (from Gmelin)
View in Reaxys



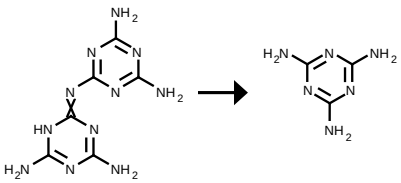
Rx-ID: 26436214 View in Reaxys

Yield	Conditions & References
	in water, heating under reflux **Davis, T. L.; Rosenquist, E. N.**; Journal of the American Chemical Society; **vol.** 59; (1937); p. 2112 - 2115 View in Reaxys **vol.** C: MVol.D1; 37.1.1, page 347 - 348 ; (from Gmelin) View in Reaxys



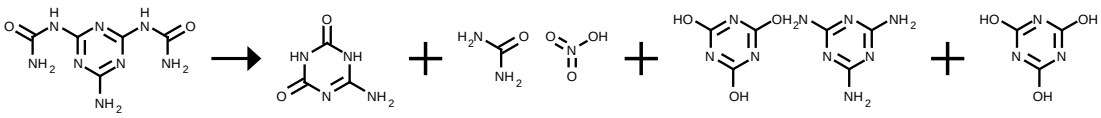
Rx-ID: 26956571 View in Reaxys

Yield	Conditions & References
	in hydrogenchloride, mixture is allowed to stand for some h; elem. anal. **Colombo, A.; Menabue, L.; Motori, A.; Pellacani, G. C.; Porzio, W.; et al.**; Inorganic Chemistry; **vol.** 24; (1985); p. 2900 - 2905 ; (from Gmelin) View in Reaxys



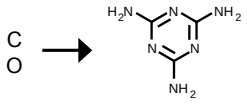
Rx-ID: 187282 View in Reaxys

Yield	Conditions & References
	With ammonia, water, T= 150 °C **Klason**; Journal fuer Praktische Chemie (Leipzig); **vol.** <2>33; (1886); p. 293 View in Reaxys **Rathke**; Chemische Berichte; **vol.** 23; (1890); p. 1675 View in Reaxys **Volhard**; Journal fuer Praktische Chemie (Leipzig); **vol.** <2>9; (1874); p. 29 View in Reaxys



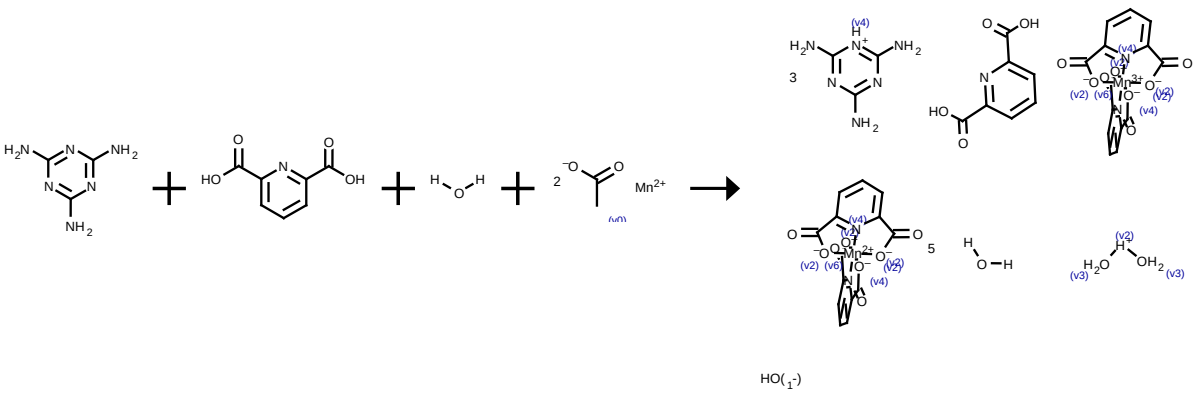
Rx-ID: 3820711 View in Reaxys

Yield	Conditions & References
34 %, 4 %, 2 %, 70 %	**With** hydrogenchloride, Heating **Iio, Kokoro; Ichikawa, Eiichi**; Bulletin of the Chemical Society of Japan; **vol.** 57; nb. 4; (1984); p. 2009 - 2010 View in Reaxys



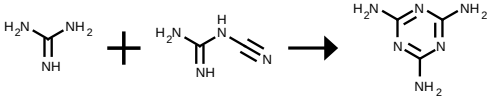
Rx-ID: 5426145 View in Reaxys

Yield	Conditions & References
	With ammonia, nickel, T= 290 - 390 °C , unter Druck **Patent**; **CIBA**; DE841459; (1951); DRP/DRBP Org.Chem. View in Reaxys
	With cobalt catalyst, ammonia, T= 290 - 390 °C , unter Druck **Patent**; **CIBA**; DE841459; (1951); DRP/DRBP Org.Chem. View in Reaxys



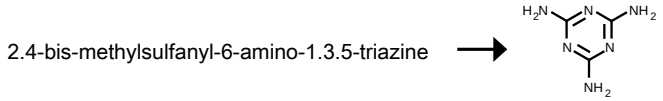
Rx-ID: 28087449 View in Reaxys

Yield	Conditions & References
	With air **in** water, reacted in water; slow evapn. at room temp. **Aghabozorg, Hossein; Derikvand, Zohreh; Olmstead, Marilyn M.; Attar Gharamaleki, Jafar**; Acta Crystallographica, Section C: Crystal Structure Communications; **vol.** 64; (2008); p. M372 - M374 ; (from Gmelin) View in Reaxys



Rx-ID: 644771 View in Reaxys

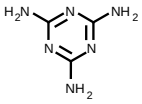
Yield	Conditions & References
	With hydrogenchloride, T= 180 - 250 °C **Smolka; Friedreich**; Monatshefte fuer Chemie; **vol.** 10; (1889); p. 95; Monatshefte fuer Chemie; **vol.** 11; (1890); p. 45 View in Reaxys
	unter Druck **Patent**; **CIBA**; DE715761; (1939); DRP/DRBP Org.Chem. View in Reaxys



Rx-ID: 5426132 View in Reaxys

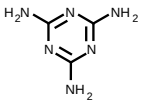
Yield	Conditions & References
	With ammonia, T= 180 °C

	Hofmann,A.W.; Chemische Berichte; **vol.** 18; (1885); p. 2758 View in Reaxys

2-methylsulfanyl-4.6-diamino-1.3.5-triazine → 

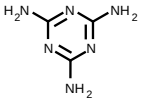
Rx-ID: 5426133 View in Reaxys

Yield	Conditions & References
	With ammonia, T= 180 °C **Hofmann,A.W.**; Chemische Berichte; **vol.** 18; (1885); p. 2758 View in Reaxys

calcium cyanate → 

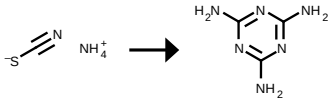
Rx-ID: 5426144 View in Reaxys

Yield	Conditions & References
	With carbon dioxide, ammonia, T= 270 °C , unter Druck **Patent**; **Allied Chem. Corp.**; US2856408; (1956) View in Reaxys

persulfocyan → 

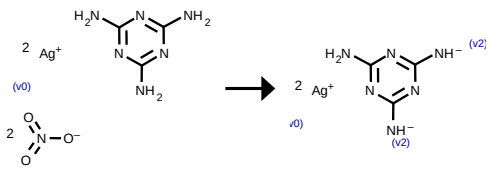
Rx-ID: 5426149 View in Reaxys

Yield	Conditions & References
	With ammonia, T= 160 °C , rhodanwasserstoffsaeures Melamin entsteht **Ponomarew**; Zhurnal Russkago Fiziko-Khimicheskago Obshchestva; **vol.** 8; (1876); p. 214,222 View in Reaxys



Rx-ID: 26444268 View in Reaxys

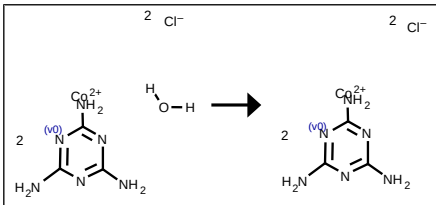
Yield	Conditions & References
36.7 %	High Pressure; at 300.deg.C; at a pressure of 40 at; 260 min **Kodama, S.; Fukushima, S.; Nose, S.; Toshitani, A.; Tomihisa, N.**; Kogyo Kagaku Zasshi; **vol.** 58; (1955); p. 214 - 217; C.A.; (1955); p. 13685 View in Reaxys **vol.** C: MVol.D1; 37.1.1, page 347 - 348 ; (from Gmelin) View in Reaxys



Rx-ID: 26630686 View in Reaxys

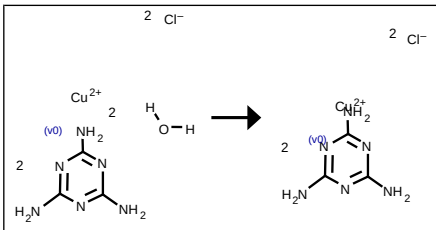
Yield	Conditions & References
	in ammonia **Wislicenus, J.**; Ber. Dtsch. Chem. Ges.; **vol.** 7; (1874); p. 286 - 298

	View in Reaxys **vol.** Ag: MVol.B6; 1.5.3.2, page 187 - 191 ; (from Gmelin) View in Reaxys



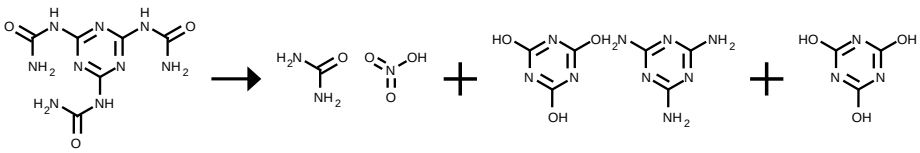
Rx-ID: 26748830 View in Reaxys

Yield	Conditions & References
	in solid, byproducts: H2O; heating to constant weight at a fixed temp.;; elem. anal.; **Allan, J. R.; Pendlowski, M. J.; Gerrard, D. L.; Bowley, H. J.**; Thermochimica Acta; **vol.** 115; (1987); p. 21 - 30 ; (from Gmelin) View in Reaxys



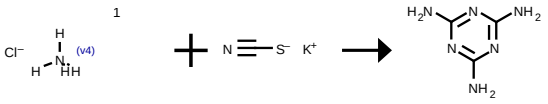
Rx-ID: 26749712 View in Reaxys

Yield	Conditions & References
	in solid, byproducts: H2O; heating to constant weight at a fixed temp.;; elem. anal.; **Allan, J. R.; Pendlowski, M. J.; Gerrard, D. L.; Bowley, H. J.**; Thermochimica Acta; **vol.** 115; (1987); p. 21 - 30 ; (from Gmelin) View in Reaxys



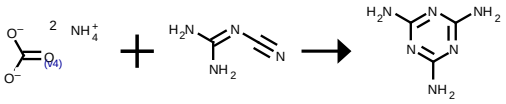
Rx-ID: 3870490 View in Reaxys

Yield	Conditions & References
18 %, 26 %, 77 %	**With** hydrogenchloride, Time= 4h, Heating **Iio, Kokoro; Ichikawa, Eiichi**; Bulletin of the Chemical Society of Japan; **vol.** 57; nb. 4; (1984); p. 2009 - 2010 View in Reaxys
77 %, 18 %, 26 %	**With** hydrogenchloride, Time= 4h, Heating **Iio, Kokoro; Ichikawa, Eiichi**; Bulletin of the Chemical Society of Japan; **vol.** 57; nb. 4; (1984); p. 2009 - 2010 View in Reaxys
77 %, 26 %, 18 %	**With** hydrogenchloride, Time= 4h, Heating **Iio, Kokoro; Ichikawa, Eiichi**; Bulletin of the Chemical Society of Japan; **vol.** 57; nb. 4; (1984); p. 2009 - 2010 View in Reaxys



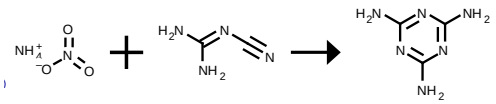
Rx-ID: 26343939 View in Reaxys

Yield	Conditions & References
	in melt, byproducts: ammeline, melamine thiocyanate; melting KSCN with 2-fold wt.-excess of NH4Cl **vol.** C: MVol.D1; 37.1, page 347 - 347 View in Reaxys **Liebig, J.**; Liebigs Annalen der Chemie; **vol.** 10; (1834); p. 1 - 47 ; (from Gmelin) View in Reaxys



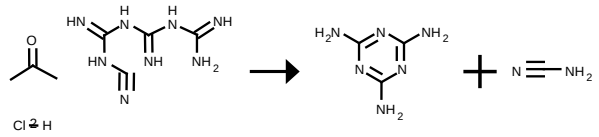
Rx-ID: 26383487 View in Reaxys

Yield	Conditions & References
	With carbon dioxide, water, byproducts: guanidinium carbonate; in autoclave at 133.deg.C **Scholl, W.; Davis, R. O. E.; Brown, B. E.; Reid, F. R.**; Industrial and Engineering Chemistry; **vol.** 29; (1937); p. 202 - 205 View in Reaxys **vol.** C: MVol.D1; 24.9.4.1, page 289 - 290 ; (from Gmelin) View in Reaxys



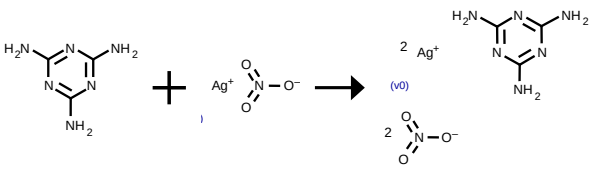
Rx-ID: 26466247 View in Reaxys

Yield	Conditions & References
	With pentaerythrite, 115-118.deg.C **Branddimarte, E.**; Chimica e l'Industria (Milan, Italy); **vol.** 35; (1953); p. 553 - 555 View in Reaxys **vol.** C: MVol.D1; 24.9.4.1, page 289 - 290 ; (from Gmelin) View in Reaxys



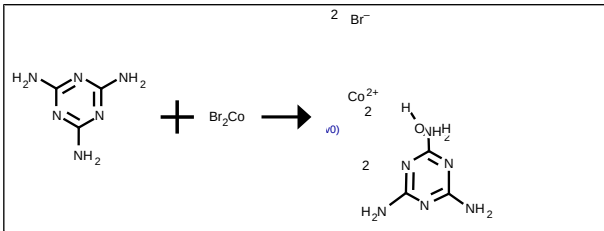
Rx-ID: 26480146 View in Reaxys

Yield	Conditions & References
	in not given, in alk. medium; at room temp. **vol.** C: MVol.D1; 37.1.2, page 348 - 350 View in Reaxys **Patent**; **McLean, A. F.**; US2402061; (1946) ; (from Gmelin) View in Reaxys



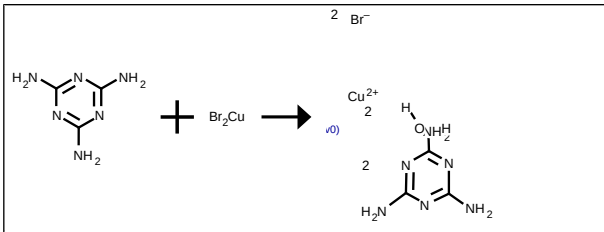
Rx-ID: 26608537 View in Reaxys

Yield	Conditions & References
	in water, cool soln., excess of AgNO3; washed with water, dried over H2SO4 **Wislicenus, J.**; Ber. Dtsch. Chem. Ges.; **vol.** 7; (1874); p. 286 - 298 View in Reaxys **vol.** Ag: MVol.B6; 1.5.3.2, page 187 - 191 ; (from Gmelin) View in Reaxys



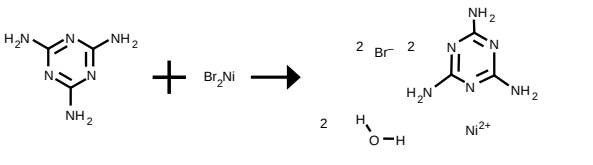
Rx-ID: 26659840 View in Reaxys

Yield	Conditions & References
	in water, addn. of a boiling aq. soln. of melamine to a warm soln. of the metal salt,; evapn., pptn., filtration, washing (boiling water), drying (over CaCl2); elem. anal.; **Allan, J. R.; Pendlowski, M. J.; Gerrard, D. L.; Bowley, H. J.**; Thermochimica Acta; **vol.** 115; (1987); p. 21 - 30 ; (from Gmelin) View in Reaxys



Rx-ID: 26659841 View in Reaxys

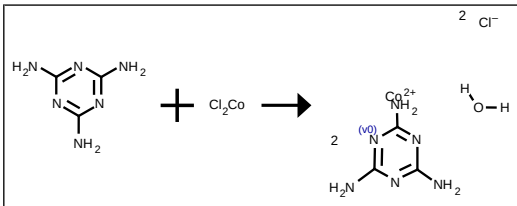
Yield	Conditions & References
	in water, addn. of a boiling aq. soln. of melamine to a warm soln. of the metal salt;; evapn., pptn., filtration, washing (boiling water), drying (over CaCl2); elem. anal.; **Allan, J. R.; Pendlowski, M. J.; Gerrard, D. L.; Bowley, H. J.**; Thermochimica Acta; **vol.** 115; (1987); p. 21 - 30 ; (from Gmelin) View in Reaxys



Rx-ID: 26659842 View in Reaxys

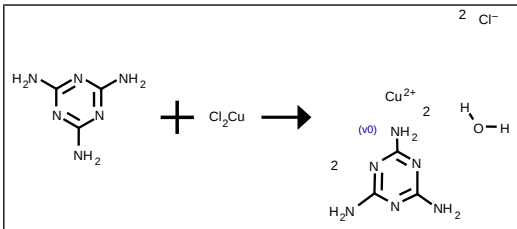
Yield	Conditions & References
	in water, addn. of a boiling aq. soln. of melamine to a warm soln. of the metal salt;; evapn., pptn., filtration, washing (boiling water), drying (over CaCl2); elem. anal.; **Allan, J. R.; Pendlowski, M. J.; Gerrard, D. L.; Bowley, H. J.**; Thermochimica Acta; **vol.** 115; (1987); p. 21 - 30 ; (from Gmelin)

	View in Reaxys



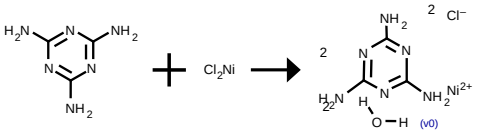
Rx-ID: 26659843 View in Reaxys

Yield	Conditions & References
	in water, addn. of a boiling aq. soln. of melamine to a warm soln. of the metal salt,; evapn., pptn., filtration, washing (boiling water), drying (over CaCl2); elem. anal.; **Allan, J. R.; Pendlowski, M. J.; Gerrard, D. L.; Bowley, H. J.**; Thermochimica Acta; **vol.** 115; (1987); p. 21 - 30 ; (from Gmelin) View in Reaxys



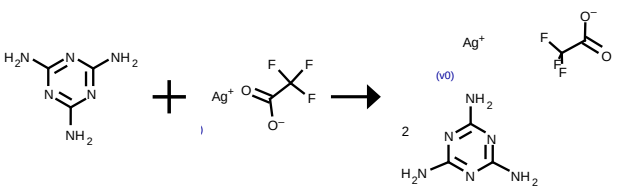
Rx-ID: 26659844 View in Reaxys

Yield	Conditions & References
	in water, addn. of a boiling aq. soln. of melamine to a warm soln. of the metal salt;; evapn., pptn., filtration, washing (boiling water), drying (over CaCl2); elem. anal.; **Allan, J. R.; Pendlowski, M. J.; Gerrard, D. L.; Bowley, H. J.**; Thermochimica Acta; **vol.** 115; (1987); p. 21 - 30 ; (from Gmelin) View in Reaxys



Rx-ID: 26659845 View in Reaxys

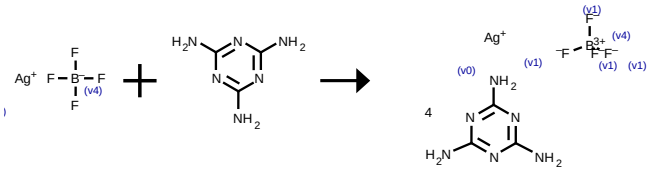
Yield	Conditions & References
	in water, addn. of a boiling aq. soln. of melamine to a warm soln. of the metal salt;; evapn., pptn., filtration, washing (boiling water), drying (over CaCl2); elem. anal.; **Allan, J. R.; Pendlowski, M. J.; Gerrard, D. L.; Bowley, H. J.**; Thermochimica Acta; **vol.** 115; (1987); p. 21 - 30 ; (from Gmelin) View in Reaxys



Rx-ID: 27392750 View in Reaxys

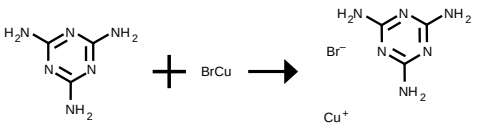
Yield	Conditions & References
	in water, 1:1 molar ratio

	Schabi, Muhamet; Meyer, Gerd; Zeitschrift fuer Anorganische und Allgemeine Chemie; **vol.** 630; (2004); p. 1758 - 1758 ; (from Gmelin) View in Reaxys



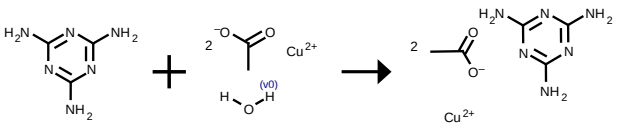
Rx-ID: 27392751 View in Reaxys

Yield	Conditions & References
	in water, 1:1 molar ratio **Schabi, Muhamet; Meyer, Gerd**; Zeitschrift fuer Anorganische und Allgemeine Chemie; **vol.** 630; (2004); p. 1758 - 1758 ; (from Gmelin) View in Reaxys



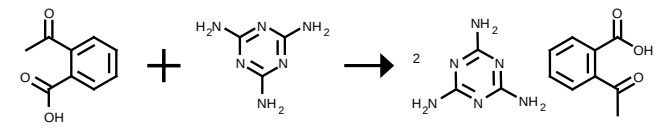
Rx-ID: 27478975 View in Reaxys

Yield	Conditions & References
87.4 %	**in** acetonitrile, Cu compd. dissolved in Ar-degassed MeCN, filtered, melamine added, suspn. sealed in glass tube, heated with stirring to 100.deg.C for 20 h; filtered, washed with MeCN and Et2O, dried in vac.; elem. anal. **Wiles, Austin B.; Bozzuto, Daniel; Cahill, Christopher L.; Pike, Robert D.**; Polyhedron; **vol.** 25; (2006); p. 776 - 782 ; (from Gmelin) View in Reaxys



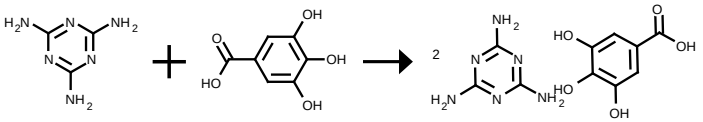
Rx-ID: 27478979 View in Reaxys

Yield	Conditions & References
91.5 %	**in** acetonitrile, Cu compd. dissolved in Ar-degassed MeCN, equimolar amt. of melamine added, suspn. sealed in glass tube, heated with stirring to 100.deg.C for14 h; filtered, washed with MeCN and Et2O, dried in vac.; elem. anal. **Wiles, Austin B.; Bozzuto, Daniel; Cahill, Christopher L.; Pike, Robert D.**; Polyhedron; **vol.** 25; (2006); p. 776 - 782 ; (from Gmelin) View in Reaxys



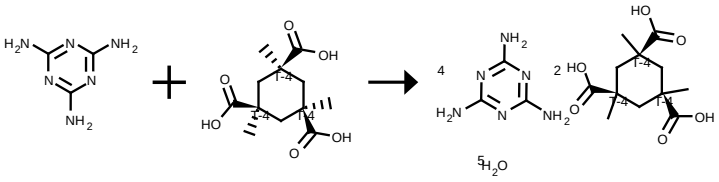
Rx-ID: 29103913 View in Reaxys

Yield	Conditions & References
	in water, Heating **Perpetuo, Genivaldo Julio; Janczak, Jan**; Journal of Molecular Structure; **vol.** 891; nb. 1-3; (2008); p. 429 - 436 View in Reaxys



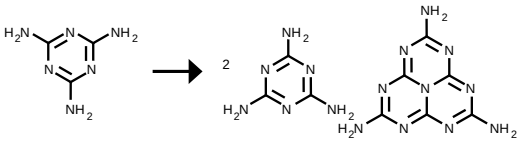
Rx-ID: 29103914 View in Reaxys

Yield	Conditions & References
	in water, Heating **Perpetuo, Genivaldo Julio; Janczak, Jan**; Journal of Molecular Structure; **vol.** 891; nb. 1-3; (2008); p. 429 - 436 View in Reaxys



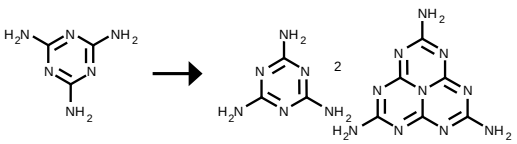
Rx-ID: 29331721 View in Reaxys

Yield	Conditions & References
	With water, T= 20 °C **Huczynski, Adam; Brzezinski, Bogumil; Janczak, Jan**; Journal of Molecular Structure; **vol.** 922; nb. 1-3; (2009); p. 77 - 82 View in Reaxys



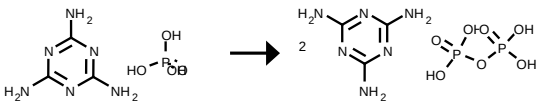
Rx-ID: 29384749 View in Reaxys

Yield	Conditions & References
	T= 20 - 390 °C , Sealed tube **Sattler, Andreas; Pagano, Sandro; Zeuner, Martin; Zurawski, Alexander; Mueller-Buschbaum, Klaus; Schnick, Wolfgang; Gunzelmann, Daniel; Senker, Juergen**; Chemistry--A European Journal; **vol.** 15; nb. 47; (2009); p. 13161 - 13170 View in Reaxys



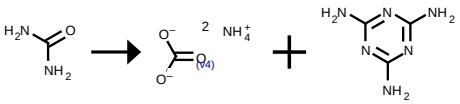
Rx-ID: 29384751 View in Reaxys

Yield	Conditions & References
	T= 20 - 430 °C , Sealed tube **Sattler, Andreas; Pagano, Sandro; Zeuner, Martin; Zurawski, Alexander; Mueller-Buschbaum, Klaus; Schnick, Wolfgang; Gunzelmann, Daniel; Senker, Juergen**; Chemistry--A European Journal; **vol.** 15; nb. 47; (2009); p. 13161 - 13170 View in Reaxys



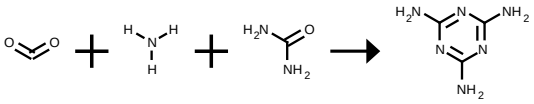
Rx-ID: 10056302 View in Reaxys

Yield	Conditions & References
	Time= 2h, T= 240 °C **Brodski, Vladimir; Peschar, Rene; Schenk, Henk; Brinkmann, Andreas; Eck, Ernst R. H. van; Kentgens, Arno P. M.; Coussens, Betty; Braam, Ad**; Journal of Physical Chemistry B: Condensed Matter, Materials, Surfaces, Interfaces, & Biophysical Chemistry; **vol.** 108; nb. 39; (2004); p. 15069 - 15076 View in Reaxys



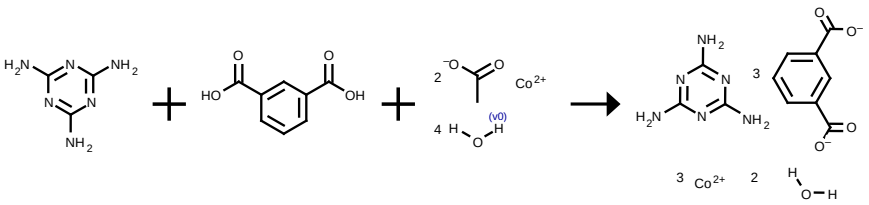
Rx-ID: 26105136 View in Reaxys

Yield	Conditions & References
25 %, 18 %	thermal decompn. in closed ampul; at 400.deg.C; 180 min **Kazarnovskii, S. N.; Malkina, N. I.**; Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation); **vol.** 31; (1958); p. 439 - 444; Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation); **vol.** 31; (1958); p. 452 - 458 View in Reaxys **vol.** C: MVol.D1; 45.8.1, page 412 - 415 ; (from Gmelin) View in Reaxys



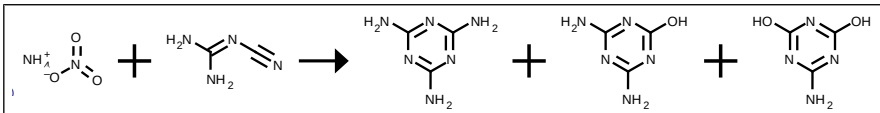
Rx-ID: 26402165 View in Reaxys

Yield	Conditions & References
	With Al-oxide as catalyst, at 380.deg.C; fluid bed; cooling down to 140.deg.C **Hamprecht, G.; Schwarzmann, M.**; Chem. Ingr. Tech.; **vol.** 40; (1968); p. 462 - 464 View in Reaxys **vol.** C: MVol.D1; 37.1.3.2, page 351 - 353 ; (from Gmelin) View in Reaxys



Rx-ID: 27563185 View in Reaxys

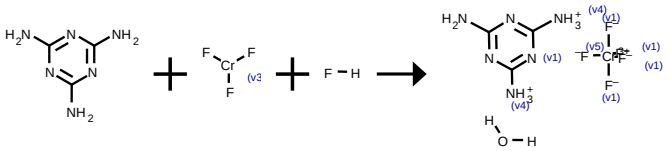
Yield	Conditions & References
	in ethanol, water, High Pressure; Co salt, isophthalatic acid and melamine in molar ratio (1:1:1) reacted hydrothermally in EtOH/H2O solvent at 180.deg.C for 60 h **Zhang, Lei; Li, Wei; Zhang, Jian; Li, Zhao-Ji; Qin, Ye-Yan; et al.**; Inorganic Chemistry Communications; **vol.** 11; (2008); p. 279 - 282 ; (from Gmelin) View in Reaxys



Rx-ID: 26466248 View in Reaxys

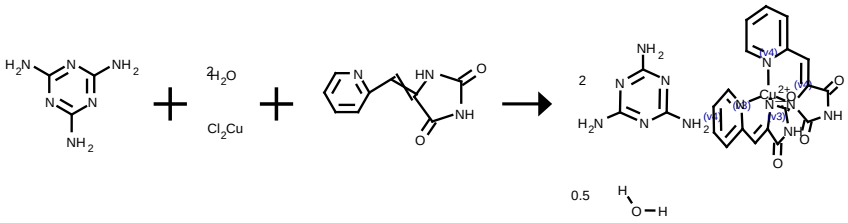
Yield	Conditions & References
	in melt, byproducts: NH3, CO2, guanidinium nitrate; 162-165.deg.C, 1 h; yield of byproducts higher at lower and higher temp.

	Smith, G. B. L.; Sabetta, V. J.; Steinbach, O. F.; Industrial and Engineering Chemistry; **vol.** 23; (1931); p. 1124 - 1129 View in Reaxys **vol.** C: MVol.D1; 24.9.4.1, page 289 - 290 ; (from Gmelin) View in Reaxys



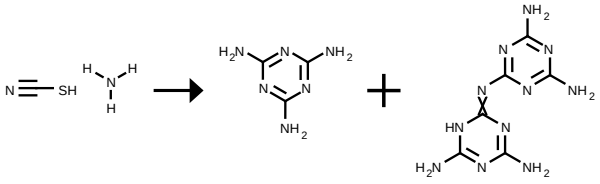
Rx-ID: 27306304 View in Reaxys

Yield	Conditions & References
	in hydrogen fluoride, 40 percent HF; crystn.; elem. anal. **Menz, D. H.; Ehrhardt, B.; Calov, U.**; Journal of Thermal Analysis; **vol.** 44; (1995); p. 179 - 186 ; (from Gmelin) View in Reaxys



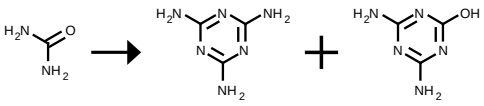
Rx-ID: 27392745 View in Reaxys

Yield	Conditions & References
	in methanol, microwave oven (130.deg.C, 1 h); filtration, drying in air **Chowdhry, Mubarik M.; Mingos, D. Michael P.; White, Andrew J. P.; Williams, David J.**; Journal of the Chemical Society, Chemical Communications; (1996); p. 899 - 900 ; (from Gmelin) View in Reaxys



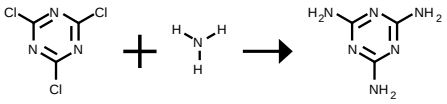
Rx-ID: 534557 View in Reaxys

Yield	Conditions & References
	T= 250 °C , rhodanwasserstoffsaeures Melamin entsteht **Klason**; Journal fuer Praktische Chemie (Leipzig); **vol.** <2>33; (1886); p. 293 View in Reaxys **Claus**; Justus Liebigs Annalen der Chemie; **vol.** 179; (1875); p. 121; Chemische Berichte; **vol.** 9; (1876); p. 1915 View in Reaxys **Liebig**; Justus Liebigs Annalen der Chemie; **vol.** 10; (1834); p. 11,17,18; Annalen der Physik (Weinheim, Germany); **vol.** 34; (1835); p. 579,586 View in Reaxys **Lemoult**; Annales de Chimie (Cachan, France); **vol.** <7>16; (1899); p. 406; Comptes Rendus Hebdomadaires des Seances de l'Academie des Sciences; **vol.** 125; (1897); p. 782 View in Reaxys



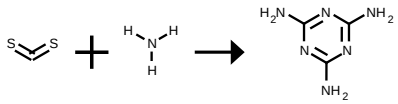
Rx-ID: 26105138 View in Reaxys

Yield	Conditions & References
4 %, 4 %	thermal decompn. in closed ampul; at 200.deg.C; 180 min **Kazarnovskii, S. N.; Malkina, N. I.**; Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation); **vol.** 31; (1958); p. 439 - 444; Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation); **vol.** 31; (1958); p. 452 - 458 View in Reaxys **vol.** C: MVol.D1; 45.8.1, page 412 - 415 ; (from Gmelin) View in Reaxys
3 %, 3 %	thermal decompn. in closed ampul; at 200.deg.C; 60 min **Kazarnovskii, S. N.; Malkina, N. I.**; Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation); **vol.** 31; (1958); p. 439 - 444; Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation); **vol.** 31; (1958); p. 452 - 458 View in Reaxys **vol.** C: MVol.D1; 45.8.1, page 412 - 415 ; (from Gmelin) View in Reaxys



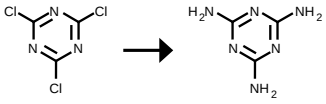
Rx-ID: 26344537 View in Reaxys

Yield	Conditions & References
	in ethanol, at 110.deg.C **Mosher, H. S.; Whitmore, F. C.**; Journal of the American Chemical Society; **vol.** 67; (1945); p. 662 - 664 View in Reaxys **vol.** C: MVol.D1; 37.1.1, page 347 - 348 ; (from Gmelin) View in Reaxys



Rx-ID: 26530307 View in Reaxys

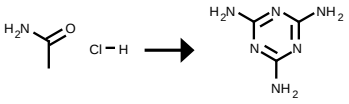
Yield	Conditions & References
10.5 %	High Pressure; at molar ratio of NH3:CS2 = 2:1; at 300.deg.C; pressure = 40-90 at; 150 min **Kodama, S.; Fukushima, S.; Nose, S.; Toshitani, A.; Tomihisa, N.**; Kogyo Kagaku Zasshi; **vol.** 58; (1955); p. 214 - 217; C.A.; (1955); p. 13685 View in Reaxys **vol.** C: MVol.D1; 37.1.1, page 347 - 348 ; (from Gmelin) View in Reaxys



Rx-ID: 110597 View in Reaxys

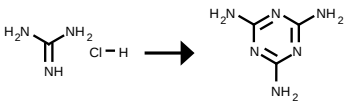
Yield	Conditions & References
	With ammonia, T= 100 °C **Hofmann**; Chemische Berichte; **vol.** 18; (1885); p. 2773 View in Reaxys **Klason**; Journal fuer Praktische Chemie (Leipzig); **vol.** <2>33; (1886); p. 293 View in Reaxys

	Lemoult; Annales de Chimie (Cachan, France); **vol.** <7>16; (1899); p. 347; Comptes Rendus Hebdomadaires des Seances de l'Academie des Sciences; **vol.** 125; (1897); p. 824 View in Reaxys
	With ammonia, T= 450 °C **Patent**; **DEGUSSA**; US2779763; (1953) View in Reaxys
	With ammonia, 100-250.deg.C, under pressure, in excess of NH3 **vol.** C: MVol.D3; 7.2.8.5, page 284 - 285 View in Reaxys **Patent**; **Hartigan, R. H.**; **Koppers Co. Inc.**; US2559617; (1951); C.A.; (1952); p. 1054 ; (from Gmelin) View in Reaxys



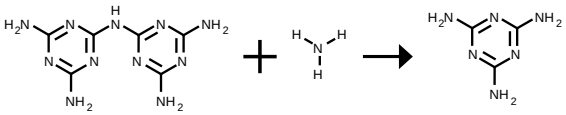
Rx-ID: 26558642 View in Reaxys

Yield	Conditions & References
	other Radiation; neutron irradiation **Lapp, T. W.; Kiser, R. W.**; Journal of Physical Chemistry; **vol.** 67; (1963); p. 2688 - 2691 View in Reaxys **vol.** C: MVol.D1; 37.1.1, page 347 - 348 ; (from Gmelin) View in Reaxys



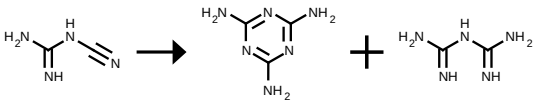
Rx-ID: 26615821 View in Reaxys

Yield	Conditions & References
	other Radiation; neutron irradiation **Lapp, T. W.; Kiser, R. W.**; Journal of Physical Chemistry; **vol.** 67; (1963); p. 1559 - 1561 View in Reaxys **vol.** C: MVol.D1; 37.1.1, page 347 - 348 ; (from Gmelin) View in Reaxys



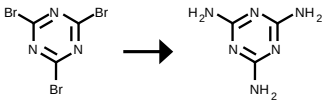
Rx-ID: 26478156 View in Reaxys

Yield	Conditions & References
	at 315.deg.C **Takimoto, M.; Funakawa, T.**; Kogyo Kagaku Zasshi; **vol.** 66; (1963); p. 804 - 809 View in Reaxys **vol.** C: MVol.D1; 37.1.1, page 347 - 348 ; (from Gmelin) View in Reaxys



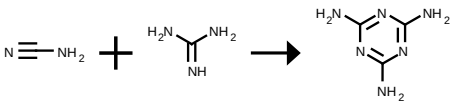
Rx-ID: 28766564 View in Reaxys

Yield	Conditions & References
	With ammonium chloride **in** phenol, Time= 5.5h, T= 140 - 145 °C **Matulkova, Irena; Nemec, Ivan; Cisarova, Ivana; Micka, Zdenek; Nemec, Petr**; Journal of Molecular Structure; **vol.** 886; nb. 1-3; (2008); p. 103 - 120 View in Reaxys



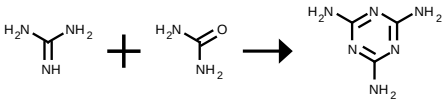
Rx-ID: 110647 View in Reaxys

Yield	Conditions & References
	With ammonia, beim Erwaermen unter Druck **Patent**; **Koppers Co.**; US2559617; (1947) View in Reaxys **Patent**; **Koppers Co.**; DE896196; (1951); DRP/DRBP Org.Chem. View in Reaxys
	With ammonia, 100-250.deg.C, under pressure, excess waterfree NH3 **vol.** C: MVol.D3; 7.3, page 287 - 288 View in Reaxys **Patent**; **Hartigan, R. H.**; **Koppers Co. Inc.**; US2559617; (1951); C.A.; (1952); p. 1054 ; (from Gmelin) View in Reaxys



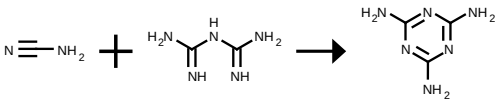
Rx-ID: 644652 View in Reaxys

Yield	Conditions & References
	unter Druck **Patent**; **CIBA**; DE715761; (1939); DRP/DRBP Org.Chem. View in Reaxys



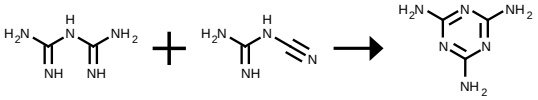
Rx-ID: 644783 View in Reaxys

Yield	Conditions & References
	T= 400 - 450 °C , p= 152000Torr **Patent**; **Suedd. Kalksticksotff-Werke**; US2845424; (1955) View in Reaxys



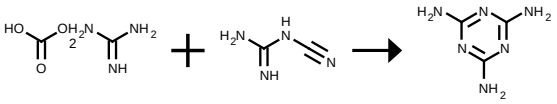
Rx-ID: 661847 View in Reaxys

Yield	Conditions & References
	unter Druck **Patent**; **CIBA**; DE715761; (1939); DRP/DRBP Org.Chem. View in Reaxys



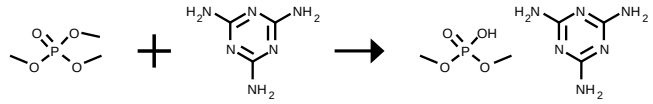
Rx-ID: 661879 View in Reaxys

Yield	Conditions & References
	unter Druck **Patent**; **CIBA**; DE715761; (1939); DRP/DRBP Org.Chem. View in Reaxys



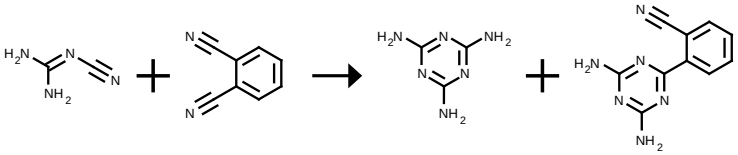
Rx-ID: 713746 View in Reaxys

Yield	Conditions & References
	T= 160 °C **Smolka; Friedreich**; Monatshefte fuer Chemie; **vol.** 10; (1889); p. 95; Monatshefte fuer Chemie; **vol.** 11; (1890); p. 45 View in Reaxys



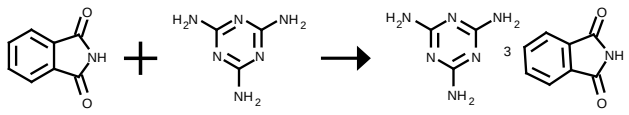
Rx-ID: 5138266 View in Reaxys

Yield	Conditions & References
	Time= 100h, T= 100 °C **Troev, K.; Tsevi, R.**; Phosphorus, Sulfur and Silicon and the Related Elements; **vol.** 133; (1998); p. 61 - 68 View in Reaxys



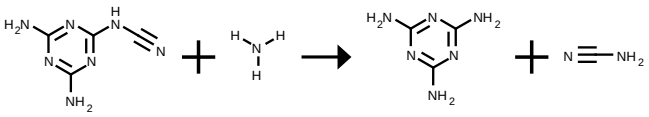
Rx-ID: 9982699 View in Reaxys

Yield	Conditions & References
	Time= 24h, T= 200 - 220 °C **Janczak, Jan; Kubiak, Ryszard**; Journal of Molecular Structure; **vol.** 749; nb. 1-3; (2005); p. 60 - 69 View in Reaxys



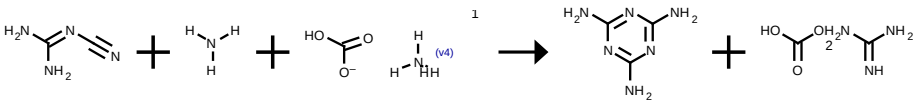
Rx-ID: 11134327 View in Reaxys

Yield	Conditions & References
	T= 99.84 - 199.84 °C , Heating **Perpetuo, Genivaldo Julio; Janczak, Jan**; Acta Crystallographica, Section C: Crystal Structure Communications; **vol.** 63; nb. 5; (2007); p. O301 - O302 View in Reaxys



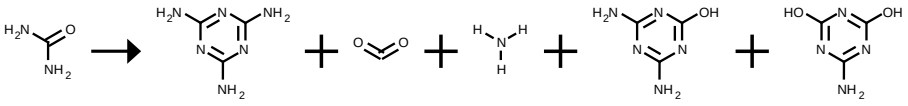
Rx-ID: 26477983 View in Reaxys

Yield	Conditions & References
	vol. C: MVol.D1; 37.1.2, page 348 - 350 View in Reaxys **Bieling, H.; Raduechel, M.; Wenzel, G.; Beyer, H.**; J. Prakt. Chem. (4); **vol.** 28; (1965); p. 325 - 340 ; (from Gmelin) View in Reaxys



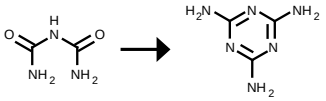
Rx-ID: 26461335 View in Reaxys

Yield	Conditions & References
	small amt. of melamine **Kazarnovskii, S. N.; Moshchanskaya, N. I.**; Zhurnal Obshchei Khimii; **vol.** 27; (1957); p. 3423 - 3426; Zhurnal Obshchei Khimii; **vol.** 27; (1957); p. 3386 - 3390 View in Reaxys **vol.** C: MVol.D1; 37.1.1, page 347 - 348 ; (from Gmelin) View in Reaxys



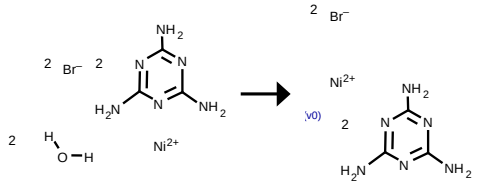
Rx-ID: 26105137 View in Reaxys

Yield	Conditions & References
	thermal decompn. **Redemann, C. E.; Riesenfeld, F. C.; Viola, F. S. La**; Industrial and Engineering Chemistry; **vol.** 50; (1958); p. 633 - 636 View in Reaxys **vol.** C: MVol.D1; 45.8.1, page 412 - 415 ; (from Gmelin) View in Reaxys



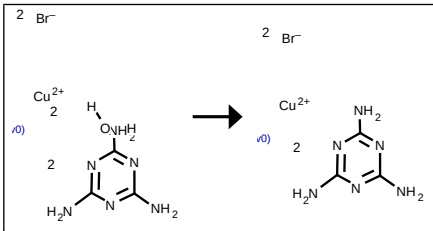
Rx-ID: 181406 View in Reaxys

Yield	Conditions & References
	With ammonia, T= 300 °C **Patent**; **Am. Cyanamid Co.**; US2658892; (1951) View in Reaxys **Patent**; **Am. Cyanamid Co.**; US2760961; (1953) View in Reaxys



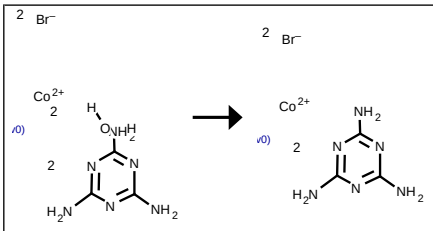
Rx-ID: 26746863 View in Reaxys

Yield	Conditions & References
	in solid, byproducts: H2O; heating to constant weight at a fixed temp.;; elem. anal.; **Allan, J. R.; Pendlowski, M. J.; Gerrard, D. L.; Bowley, H. J.**; Thermochimica Acta; **vol.** 115; (1987); p. 21 - 30 ; (from Gmelin) View in Reaxys



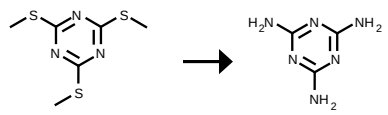
Rx-ID: 26749710 View in Reaxys

Yield	Conditions & References
	in solid, byproducts: H2O; heating to constant weight at a fixed temp.;; elem. anal.; **Allan, J. R.; Pendlowski, M. J.; Gerrard, D. L.; Bowley, H. J.**; Thermochimica Acta; **vol.** 115; (1987); p. 21 - 30 ; (from Gmelin) View in Reaxys



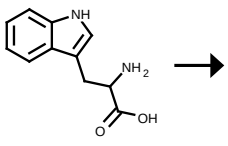
Rx-ID: 26749713 View in Reaxys

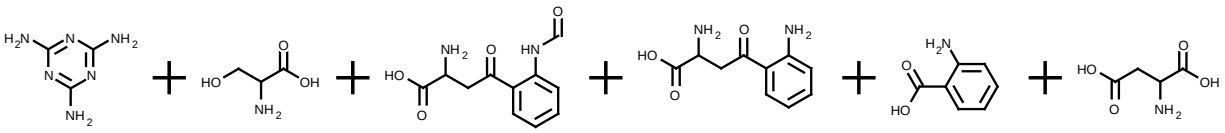
Yield	Conditions & References
	in solid, byproducts: H2O; heating to constant weight at a fixed temp.;; elem. anal.; **Allan, J. R.; Pendlowski, M. J.; Gerrard, D. L.; Bowley, H. J.**; Thermochimica Acta; **vol.** 115; (1987); p. 21 - 30 ; (from Gmelin) View in Reaxys



Rx-ID: 151546 View in Reaxys

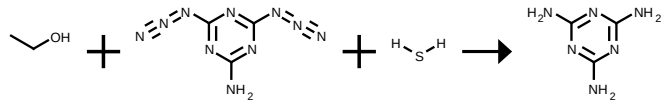
Yield	Conditions & References
	With ammonia, T= 180 °C **Hofmann,A.W.**; Chemische Berichte; **vol.** 18; (1885); p. 2758 View in Reaxys





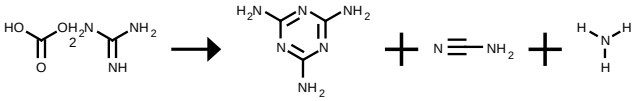
Rx-ID: 3829956 View in Reaxys

Yield	Conditions & References
7.6 % Chromat., 39.1 % Chromat., 7.4 % Chromat., 0.9 % Chromat., 2.7 % Chromat., 0.6 % Chromat.	**With** oxygen, ozone **in** water, Time= 1h, Product distribution, Mechanism **Sikorskaya, S. V.; Ignatenko, A. V.; Cherenkevich, S. N.**; J. Appl. Chem. USSR (Engl. Transl.); **vol.** 57; nb. 9; (1984); p. 2066 - 2071,1910 - 1914 View in Reaxys



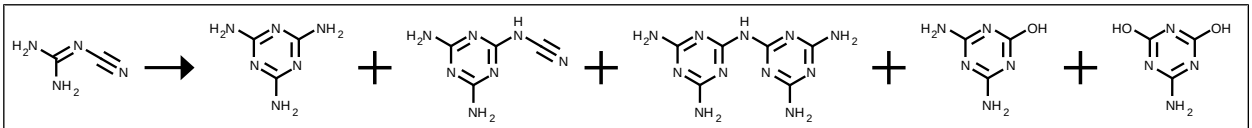
Rx-ID: 5426134 View in Reaxys

Yield	Conditions & References
	Hart; Journal of the American Chemical Society; **vol.** 50; (1928); p. 1929 View in Reaxys



Rx-ID: 8213289 View in Reaxys

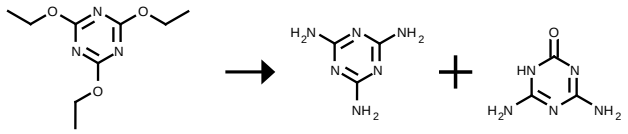
Yield	Conditions & References
	Davis; Underwood; Journal of the American Chemical Society; **vol.** 44; (1922); p. 2601 View in Reaxys



Rx-ID: 26486291 View in Reaxys

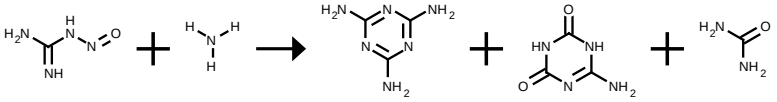
Yield	Conditions & References
	in diphenylether, byproducts: meleme, NH3; heating at absence or presence of ZnCl2 or substituted amine **Kretov, A. E.; Shmeleva, Zh. V.**; Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation); **vol.** 35; (1962); p. 852 - 855; Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation); **vol.** 35; (1962); p. 884 - 887 View in Reaxys **vol.** C: MVol.D1; 24.9.2, page 288 - 288 ; (from Gmelin) View in Reaxys
	in further solvent(s), byproducts: meleme, NH3; heating at absence or presence of ZnCl2 or substituted amine in organic solvents with boiling points close to melting point of dicyanodiamide (aniline derivatives, benzylamine, lactamide, α-aminopyridine, decahydroquinoline, 3-methyl-pyrazole) **Kretov, A. E.; Shmeleva, Zh. V.**; Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation); **vol.** 35; (1962); p. 852 - 855; Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation); **vol.** 35; (1962); p. 884 - 887 View in Reaxys **vol.** C: MVol.D1; 24.9.2, page 288 - 288 ; (from Gmelin)

	View in Reaxys
	in ethylene glycol, byproducts: meleme, NH3; heating at absence or presence of ZnCl2 or substituted amine **Kretov, A. E.; Shmeleva, Zh. V.**; Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation); **vol.** 35; (1962); p. 852 - 855; Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation); **vol.** 35; (1962); p. 884 - 887 View in Reaxys **vol.** C: MVol.D1; 24.9.2, page 288 - 288 ; (from Gmelin) View in Reaxys
	in 1,2,3,4-tetrahydro-naphthalene, byproducts: meleme, NH3; heating at absence or presence of ZnCl2 or substituted amine **Kretov, A. E.; Shmeleva, Zh. V.**; Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation); **vol.** 35; (1962); p. 852 - 855; Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation); **vol.** 35; (1962); p. 884 - 887 View in Reaxys **vol.** C: MVol.D1; 24.9.2, page 288 - 288 ; (from Gmelin) View in Reaxys



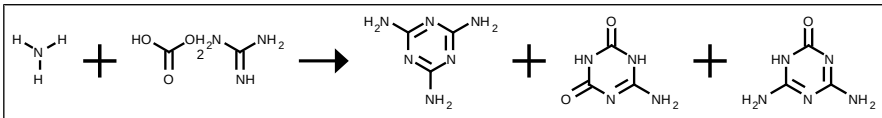
Rx-ID: 271859 View in Reaxys

Yield	Conditions & References
	With ammonia, T= 170 - 180 °C **Ponomarew**; Chemische Berichte; **vol.** 18; (1885); p. 3267 View in Reaxys



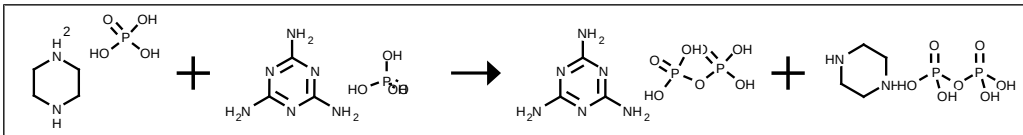
Rx-ID: 7062615 View in Reaxys

Yield	Conditions & References
	daneben unter bestimmten Bedingungen **Davis; Rosenquist**; Journal of the American Chemical Society; **vol.** 59; (1937); p. 2114 View in Reaxys



Rx-ID: 8256075 View in Reaxys

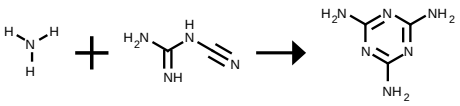
Yield	Conditions & References
	T= 160 °C , unter Druck **Davis**; Journal of the American Chemical Society; **vol.** 43; (1921); p. 2233 View in Reaxys



Rx-ID: 23752751 View in Reaxys

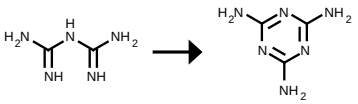
Yield	Conditions & References
	Example Name 8

	Piperazine diphosphate and melamine phosphate were mixed under heat at a weight ratio of 1:1 in an extruder (TEX44? II-52.5BW from The Japan Steel Works, Ltd.) under conditions of a cylinder temperature of 230.deg. to 270.deg.C, a raw material feed rate of 60 kg/h, and a screw rotation speed of 60 rpm to obtain a 1:1 (by weight) mixture of piperazine pyrophosphate and melamine pyrophosphate as a white powder, which was found to have a sodium content of 0 ppm. The 1percent weight loss temperature of the mixture was 300.deg.C. , T= 230 - 270 °C , Product distribution / selectivity **Patent**; **Asahi Denka Co., Ltd.**; EP1674459; (2006); (A1) English View in Reaxys



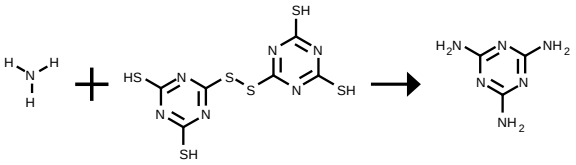
Rx-ID: 5801946 View in Reaxys

Yield	Conditions & References
	T= 100 - 160 °C , unter Druck **Patent**; **CIBA**; US2191361; (1936) View in Reaxys **Patent**; **I.G.Farbanind.**; DE752869; (1938); DRP/DRBP Org.Chem. View in Reaxys **Patent**; **CIBA**; DE734014; (1937); DRP/DRBP Org.Chem. View in Reaxys **Patent**; **CIBA**; DE721480; (1937); DRP/DRBP Org.Chem. View in Reaxys



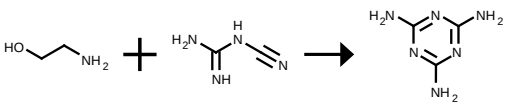
Rx-ID: 661899 View in Reaxys

Yield	Conditions & References
	T= 200 °C , Druckgefaess **Patent**; **CIBA**; CH205525; (1939) View in Reaxys



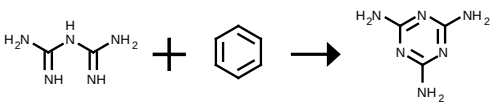
Rx-ID: 26478146 View in Reaxys

Yield	Conditions & References
55.4-71.3	at pressure **Antykov, A. P.**; Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation); **vol.** 40; (1967); p. 2435 - 2439; Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation); **vol.** 40; (1967); p. 2547 - 2552 View in Reaxys **vol.** C: MVol.D1; 37.1.1, page 347 - 348 ; (from Gmelin) View in Reaxys



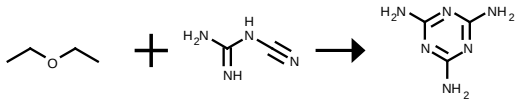
Rx-ID: 633810 View in Reaxys

Yield	Conditions & References
	T= 140 - 175 °C **Patent**; **Am.Cyanamid Co.**; US2180295; (1939) View in Reaxys



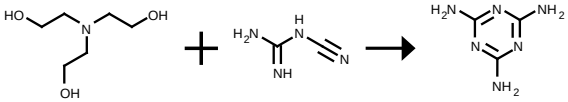
Rx-ID: 661897 View in Reaxys

Yield	Conditions & References
	T= 140 °C **Patent**; **CIBA**; CH205525; (1939) View in Reaxys



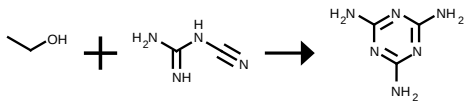
Rx-ID: 713592 View in Reaxys

Yield	Conditions & References
	T= 175 - 180 °C **Patent**; **I.G.Farbenind**; DE763813; (1937); DRP/DRBP Org.Chem. View in Reaxys



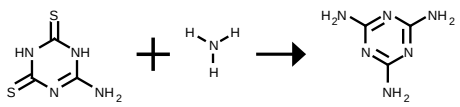
Rx-ID: 713594 View in Reaxys

Yield	Conditions & References
	beim Erhitzen **Patent**; **Am.Cyanamid Co.**; US2180295; (1939) View in Reaxys



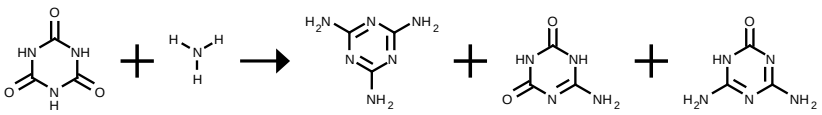
Rx-ID: 713598 View in Reaxys

Yield	Conditions & References
	T= 175 - 180 °C **Patent**; **I.G.Farbenind**; DE763813; (1937); DRP/DRBP Org.Chem. View in Reaxys



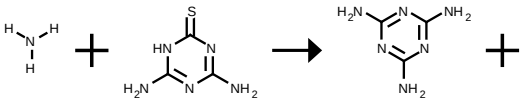
Rx-ID: 5426136 View in Reaxys

Yield	Conditions & References
	Ponomarew; Zhurnal Russkago Fiziko-Khimicheskago Obshchestva; **vol.** 8; (1876); p. 214,222 View in Reaxys



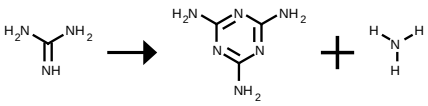
Rx-ID: 5682096 View in Reaxys

Yield	Conditions & References
	T= 250 °C **Kasarnowskii; Malkina**; Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation); **vol.** 30; (1957); p. 490; engl. Ausg. S. 525 View in Reaxys
	T= 300 °C **Kasarnowskii; Malkina**; Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation); **vol.** 30; (1957); p. 490; engl. Ausg. S. 525 View in Reaxys
	T= 350 °C **Kasarnowskii; Malkina**; Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation); **vol.** 30; (1957); p. 490; engl. Ausg. S. 525 View in Reaxys



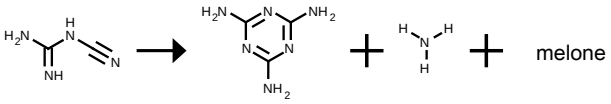
Rx-ID: 5725147 View in Reaxys

Yield	Conditions & References
	T= 200 °C **Ponomarew**; Zhurnal Russkago Fiziko-Khimicheskago Obshchestva; **vol.** 8; (1876); p. 214,222 View in Reaxys



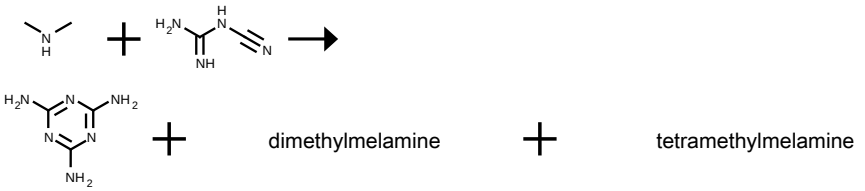
Rx-ID: 5817525 View in Reaxys

Yield	Conditions & References
	T= 160 °C **Krall**; Journal of the Chemical Society; **vol.** 107; (1915); p. 1397 View in Reaxys



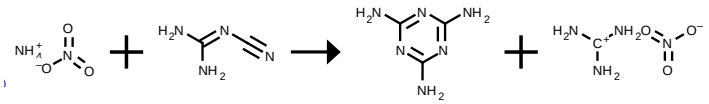
Rx-ID: 6215633 View in Reaxys

Yield	Conditions & References
	Beim Erhitzen ueber den Schmelzpunkt; daneben laess sich die Bildung von Cyanamid nachweisen **Franklin**; Journal of the American Chemical Society; **vol.** 44; (1922); p. 504 View in Reaxys **Werner; Bell**; Journal of the Chemical Society; **vol.** 117; (1920); p. 1134 View in Reaxys **Blair; Braham**; Journal of the American Chemical Society; **vol.** 44; (1922); p. 2350 View in Reaxys **Davis; Underwood**; Journal of the American Chemical Society; **vol.** 44; (1922); p. 2601 View in Reaxys



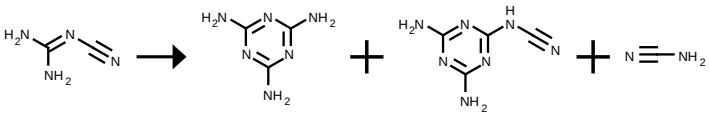
Rx-ID: 6220309 View in Reaxys

Yield	Conditions & References
	T= 120 °C , im gwschlossenen Gefaess; analoge Reaktionen mit Butylamin und Isobutylamin **Patent**; **I.G.Farbenind.**; US2222350; (1938) View in Reaxys



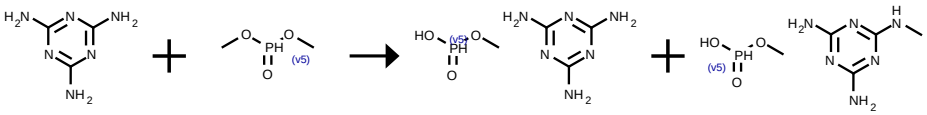
Rx-ID: 26466249 View in Reaxys

Yield	Conditions & References
	small amt. of melamine **Kazarnovskii, S, N.; Moshchanskaya, N. I.**; Zhurnal Obshchei Khimii; **vol.** 26; (1956); p. 2171 - 2173; Zhurnal Obshchei Khimii; **vol.** 26; (1956); p. 1948 - 1950 View in Reaxys **vol.** C: MVol.D1; 37.1.1, page 347 - 348 ; (from Gmelin) View in Reaxys



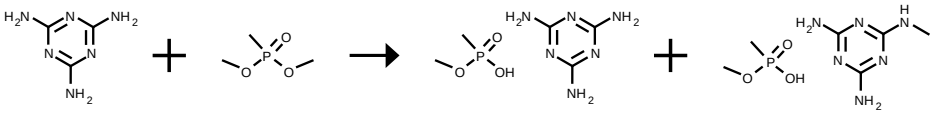
Rx-ID: 26486292 View in Reaxys

Yield	Conditions & References
	byproducts: NH3, biguanide, guanylmelamine; heating under atmospheric pressure at 213.deg.C **Kurabashi, M.; Yanagiya, K.**; Kogyo Kagaku Zasshi; **vol.** 62; (1959); p. 1872 - 1874; C.A.; **vol.** 57; (1962); p. 12703 View in Reaxys **vol.** C: MVol.D1; 24.9.2, page 288 - 288 ; (from Gmelin) View in Reaxys



Rx-ID: 5138267 View in Reaxys

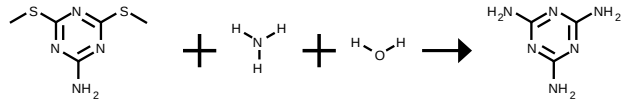
Yield	Conditions & References
	Time= 100h, T= 100 °C , Yield given, Yields of byproduct given. Title compound not separated from byproducts **Troev, K.; Tsevi, R.**; Phosphorus, Sulfur and Silicon and the Related Elements; **vol.** 133; (1998); p. 61 - 68 View in Reaxys



Rx-ID: 5138269 View in Reaxys

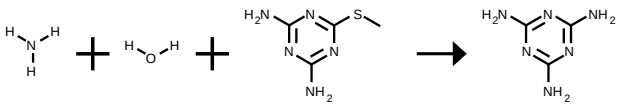
Yield	Conditions & References
	Time= 80h, T= 100 °C , Yield given, Yields of byproduct given. Title compound not separated from byproducts

	Troev, K.; Tsevi, R.; Phosphorus, Sulfur and Silicon and the Related Elements; **vol.** 133; (1998); p. 61 - 68 View in Reaxys



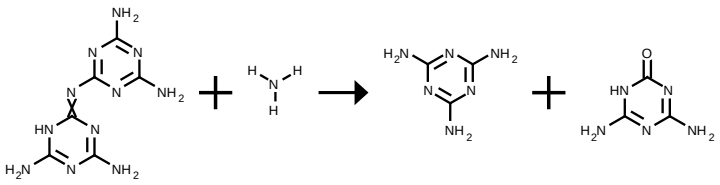
Rx-ID: 5426137 View in Reaxys

Yield	Conditions & References
	T= 180 °C **Hofmann**; Chemische Berichte; **vol.** 18; (1885); p. 2756 View in Reaxys



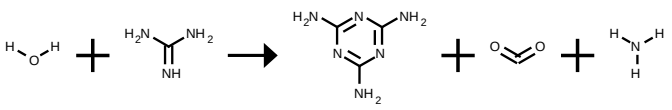
Rx-ID: 5426141 View in Reaxys

Yield	Conditions & References
	T= 180 °C **Hofmann**; Chemische Berichte; **vol.** 18; (1885); p. 2756 View in Reaxys



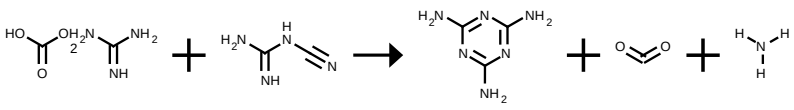
Rx-ID: 7059824 View in Reaxys

Yield	Conditions & References
	T= 150 °C **Rathke**; Chemische Berichte; **vol.** 23; (1890); p. 1675 View in Reaxys



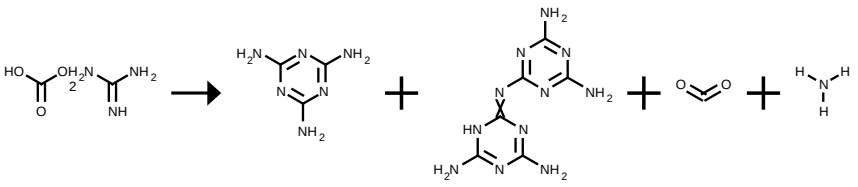
Rx-ID: 5817557 View in Reaxys

Yield	Conditions & References
	Krall; Journal of the Chemical Society; **vol.** 107; (1915); p. 1397 View in Reaxys



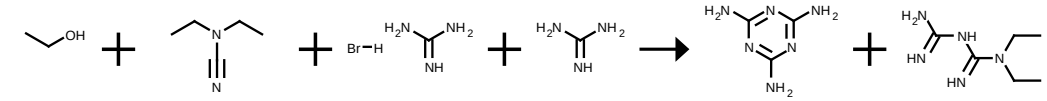
Rx-ID: 5817558 View in Reaxys

Yield	Conditions & References
	T= 160 °C **Smolka; Friedreich**; Monatshefte fuer Chemie; **vol.** 10; (1889); p. 95; Monatshefte fuer Chemie; **vol.** 11; (1890); p. 45 View in Reaxys



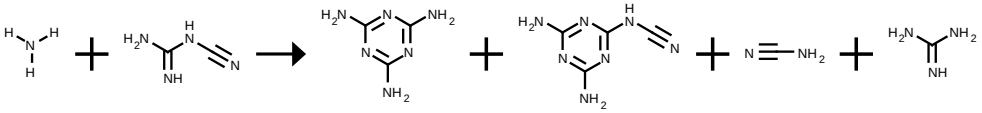
Rx-ID: 8213301 View in Reaxys

Yield	Conditions & References
	T= 180 - 190 °C **Smolka; Friedreich**; Monatshefte fuer Chemie; **vol.** 10; (1889); p. 95; Monatshefte fuer Chemie; **vol.** 11; (1890); p. 45 View in Reaxys



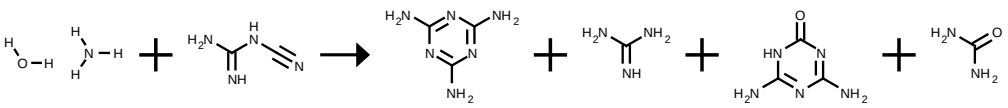
Rx-ID: 644631 View in Reaxys

Yield	Conditions & References
	T= 100 °C **Schotte; Priewe; Roescheisen**; Hoppe-Seyler's Zeitschrift fuer Physiologische Chemie; **vol.** 174; (1928); p. 143 View in Reaxys



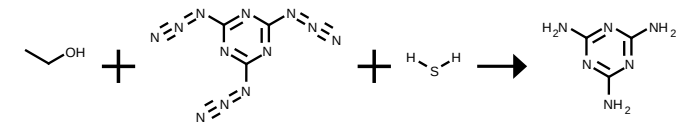
Rx-ID: 5853682 View in Reaxys

Yield	Conditions & References
	T= 160 °C , Produkt: 2,4-Diamino-6-guanidino-<1,3,5>triazin **Kurabayashi; Yanagiya**; Kogyo Kagaku Zasshi; **vol.** 56; (1953); p. 379,426; Chem.Abstr.; (1954); p. 10593,11429 View in Reaxys



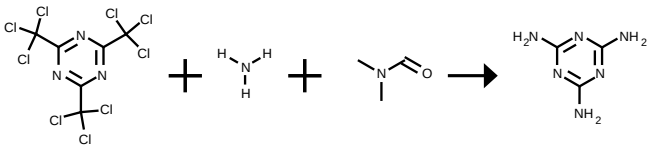
Rx-ID: 5957030 View in Reaxys

Yield	Conditions & References
	T= 120 °C **Stolle; Krauch**; Chemische Berichte; **vol.** 46; (1913); p. 2337 View in Reaxys



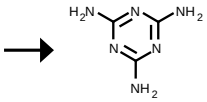
Rx-ID: 5426135 View in Reaxys

Yield	Conditions & References
	Hart; Journal of the American Chemical Society; **vol.** 50; (1928); p. 1929 View in Reaxys



Rx-ID: 5426140 View in Reaxys

Yield	Conditions & References
	T= 165 °C **Kreutzberger**; Journal of the American Chemical Society; **vol.** 79; (1957); p. 2629,2632 View in Reaxys



Rx-ID: 5426131 View in Reaxys

Yield	Conditions & References
88%	Example Name 2 Example Title EXAMPLE 2 EXAMPLE 2 The procedure of Example 1 above is repeated in every detail except that silica having a surface area of 300 m^2 /g is employed in lieu of alumina. A melamine yield of 88percent of theory is obtained. **Patent**; **American Cyanamid Company**; US4284771; (1981); (A1) English View in Reaxys
85%	Example Name 4 Example Title EXAMPLE 4 EXAMPLE 4 Repeating the procedure of Example 1 in every detail except that nitrogen is omitted, there is obtained an 85percent of theory yield of melamine. **Patent**; **American Cyanamid Company**; US4284771; (1981); (A1) English View in Reaxys
84.6%	Example Name 6 Example Title EXAMPLE 6 EXAMPLE 6 84 g of a 50percent aqueous cyanamide solution is added drop by drop to a mixture, heated at 180.deg. C, of 140 g of dimethylsulfoxide, 2.0 g of potassium hydroxide and 1 g of solid cyanamide at such a rate that the reaction temperature of 180.deg. C is maintained. During the 25 minutes of drop by drop addition, water and a small amount of dimethyl sulfoxide distilled out. The mixture was allowed to after-react for 10 minutes at 180.deg. C, and then cooled. After dilution with a little water, the melamine crystals are filtered out, washed and dried. 36.4 of melamine is obtained corresponding to a yield of 84.6percent. **Patent**; **Suddeutsche Kalkstickstoff-Werke Aktiengesellschaft**; US4069383; (1978); (A1) English View in Reaxys
79.4%	Example Name 3 Example Title EXAMPLE 3 EXAMPLE 3 A solution of 63 g of solid cyanamide in 40 g of sulfolan is added drop by drop over a period of 12 minutes to a mixture of 100 g of sulfolan and 4 g of potassium hydroxide, which is heated at 180.deg. C. After a reaction time of 30 minutes at about 180.deg. C, the mixture is cooled. The melamine that has crystallized is removed by filtration, stirred up in water, and suction filtered. After drying, 50 g of melamine is obtained, corresponding to a yield of 79.4percent. 2.4 g, or 3.8percent, of melamine still remains dissolved in the filtrate and wash water. **Patent**; **Suddeutsche Kalkstickstoff-Werke Aktiengesellschaft**; US4069383; (1978); (A1) English

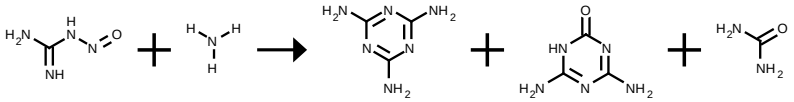
	View in Reaxys
	Beyer,H.; Zeitschrift fuer Chemie (Stuttgart, Germany); **vol.** 6; (1966); p. 213 - 218 View in Reaxys **Dirscherl et al.**; Justus Liebigs Annalen der Chemie; **vol.** 677; (1964); p. 177,184 View in Reaxys **Ichikawa et al.**; Yuki Gosei Kagaku Kyokaishi; **vol.** 32; (1974); p. 936,939; Chem.Abstr.; **vol.** 82; nb. 112043 View in Reaxys **Ichikawa et al.**; Yuki Gosei Kagaku Kyokaishi; **vol.** 33; (1975); p. 129,134; Chem.Abstr.; **vol.** 83; nb. 78528m; (1975) View in Reaxys **Gerega et al.**; J. Gen. Chem. USSR (Engl. Transl.); **vol.** 39; (1969); p. 1307,1278,1279 View in Reaxys **Antykov**; J. Appl. Chem. USSR (Engl. Transl.); **vol.** 40; (1967); p. 2547,2435,2437 View in Reaxys **Patent**; **Stamicarbon N.V.**; DE1810038; (1967); Chem.Abstr.; **vol.** 71; nb. 70648g; (1969) View in Reaxys **Patent**; **Nissan Chem.Ind.**; FR1538015; (1966); Chem.Abstr.; **vol.** 71; nb. 70650b; (1969) View in Reaxys **Yamada et al.**; Yuki Gosei Kagaku Kyokaishi; **vol.** 21; nb. 12; (1963); p. 946,947-951 View in Reaxys **Patent**; **BASF**; BE633008; (1963); Chem.Abstr.; **vol.** 61; nb. 670; (1964) View in Reaxys **Henry**; Journal of Organic Chemistry; **vol.** 31; (1966); p. 1973 View in Reaxys **Patent**; **Nissan Chem. Ind.**; GB1060735; (1962); Chem.Abstr.; **vol.** 76; nb. 25938u; (1972) View in Reaxys **Rukevich et al.**; J. Appl. Chem. USSR (Engl. Transl.); **vol.** 44; (1971); p. 1132,1139,1141 View in Reaxys **Rukevich; Zagranichnyi**; J. Appl. Chem. USSR (Engl. Transl.); **vol.** 44; (1971); p. 1600,1616,1617,1618 View in Reaxys **Lapp; Kiser**; Journal of Physical Chemistry; **vol.** 67; (1963); p. 1559 View in Reaxys **Yanagiya; Kurabayashi**; Tokyo Kogyo Shikensho Hokoku; **vol.** 57; (1962); p. 166,167-170; Chem.Abstr.; **vol.** 62; nb. 6487; (1965) View in Reaxys **Shirai; Sugino**; Journal of Organic Chemistry; **vol.** 25; (1960); p. 1046 View in Reaxys **Patent**; **Neubner**; US2913461; Chem.Abstr.; nb. 8869; (1960) View in Reaxys **Patent**; **Bergwerksverband zur Verwertung von Schutzrechten der Kohlentechnik GmbH**; GB810883; Chem.Abstr.; nb. 1574; (1960) View in Reaxys **Patent**; **Grosskinsky et al.**; DE1019655; Chem.Abstr.; nb. 1573; (1960) View in Reaxys **Michailow; Alaminow**; Khimicheskaya Promyshlennost (St. Petersburg, Russian Federation); (1961); p. 319,320-325; Chem.Abstr.; nb. 25351; (1961) View in Reaxys **Spasskaja; Kasarnowskii**; J. Appl. Chem. USSR (Engl. Transl.); **vol.** 35; (1962); p. 1842,1764; Chem.Abstr.; **vol.** 58; nb. 6828; (1963) View in Reaxys **Kretow; Schmelewa**; J. Appl. Chem. USSR (Engl. Transl.); **vol.** 35; (1962); p. 884,852; Chem.Abstr.; **vol.** 57; nb. 4662; (1962) View in Reaxys **Jezic**; Croatica Chemica Acta; **vol.** 34; (1962); p. 203 View in Reaxys **Schmidt**; Monatshefte fuer Chemie; **vol.** 99; nb. 2; (1968); p. 664 View in Reaxys
	Example Name 9.C Example Title Example 9C Example 9C Simulated Melamine/Cellulosic Fiber Blend Dyeing

	Scoured fabric samples are mock-dyed at a 15:1 (bath:fabric) ratio in a bath containing: demineralized water; 1.0percent Intratex.(R). DD; and 20percent Glauber's Salt. The pH is not adjusted. The bath is heated at approximately 3.0.deg. C. per minute to 90.deg. C. and run at 90.deg. C. for 20 minutes. The bath is cooled, emptied and the sample is rinsed with hot and cold water. **Patent**; **BASF Corporation**; US5891813; (1999); (A1) English View in Reaxys
	The central groups in the compound XI are derived, for example, from the following compounds Z^3: aliphatic alcohols such as glycerol, ... aminoethylethanolamine, cyanuric acid, thiocyanuric acid, melamine and trishydroxyethyl isocyanurate, tetramethylene diisocyanate, hexamethylene diisocyanate (HDI), ... **Patent**; **BASF Aktiengesellschaft**; US5350873; (1994); (A1) English View in Reaxys
	from triazine derivatives, such as cyanuric acid, thiocyanuric acid, melamine and trishydroxyethyl isocyanurate, **Patent**; **BASF Aktiengesellschaft**; US5417882; (1995); (A1) English View in Reaxys
	aminoethylethanolamine, from triazine derivatives, such as cyanuric acid, thiocyanuric acid, melamine and **Patent**; **BASF Aktiengesellschaft**; US5417884; (1995); (A1) English View in Reaxys
	Example Name 6 Example Title EXAMPLE 6 2-n-butylamino-4,6-diamino-1,3,5-triazine 16.5percent 2,4-bis(n-butylamino)-6-amino-1,3,5-triazine 35.0percent 2,4,6-tris(n-butylamino)-1,3,5-triazine 23.6percent 2-di-n-butylamino-4,6-bis(n-butylamino)-1,3,5-triazine 15.0percent After 1-butanol and water were distilled off from the reaction mixture, toluene was added to the residue. The separated toluene solution by filtration was analyzed by HPLC. As a result, a small amount of 2-n-butylamino-4,6-diamino1,3,5-triazine and approximately a total production amount of 2,4-bis(n-butylamino)-6-amino-1,3,5-triazine, 2,4,6-tris-(n-butylamino)-1,3,5-triazine and 2-di-n-butylamino-4,6-bis-(n-butylamino)-1,3,5-triazine were extracted in toluene, respectively. Further, the insoluble matter was suspended in water, and the soluble portion was extracted and analyzed. Consequently, 98.0percent of the catalyst component and a trace amount of melamine were recovered. **Patent**; **Nissan Chemical Industries, Ltd.**; US5792867; (1998); (A1) English View in Reaxys
	Example Name 1; 2 **in** water, T= 30 - 130 °C , Purification / work up

	Patent; **AMI - AGROLINZ MELAMINE INTERNATIONAL GMBH**; WO2006/117243; (2006); (A1) German View in Reaxys
	Example Name 2 Example Title EXAMPLE 2 Thereafter, the reaction temperature of the fluidized bed reactor is restored to 390.deg. C. and the production of melamine from liquid urea is continued. The melamine formed is again investigated. **Patent**; **BASF Aktiengesellschaft**; US4387224; (1983); (A1) English View in Reaxys
	Example Name 4 Example Title EXAMPLE 4 EXAMPLE 4 50.4 of melamine and 34 g of 3a,6a-dimethyl-glycoluril in 300 g of water are reacted analogously to Example 3. After drying, 73.2 g of a salt with 2 mols of melamine are obtained, the structure of which is confirmed by IR spectrum and elemental analysis. C_{12} H_{22} N_{16} O_2 (422.4). Calculated: C=34.12percent, H=5.25percent, N=53.06percent. Found: C=34.0percent, H=5.3percent, N=53.2percent. **Patent**; **Bayer Aktiengesellschaft**; US4433144; (1984); (A1) English View in Reaxys
	The procedures of Examples I, IV and VII are repeated a number times to produce other tetra-maleimide polyimides of this invention using in place of the BABA, corresponding equivalent amounts respectively of the following triamines: a. 1,3,5-triaminobenzene b. 1,3,6-triaminonaphthalene d. melamine e. 2,4(p-aminophenylethylidene-1)aniline f. 2,3,5-tris(anilino)hexane g. p,p',p''-tris(aminophenyl)methane **Patent**; **Plastics Engineering Company**; US4438280; (1984); (A1) English View in Reaxys
	Example Name 10 Example Title EXAMPLE 10 EXAMPLE 10 A solution of 83 g of solid cyanamide in 57 g of dimethylsulfoxide is added drop by drop to a mixture, heated at 160.deg. C, of 130 g of dimethylsulfoxide, 5.2 g of potassium hydroxide and 1 g of cyanamide, over a period of 45 minutes. After another 15 minutes of reaction time at 160.deg. C, the mixture is cooled. The precipitated melamine is filtered out, stirred up in water, and again filtered. After drying, 59 g of melamine is obtained, corresponding to 70.2percent. **Patent**; **Suddeutsche Kalkstickstoff-Werke Aktiengesellschaft**; US4069383; (1978); (A1) English View in Reaxys
	Example Name 8 Example Title EXAMPLE 8 EXAMPLE 8 A solution of 63 g of solid cyanamide in 40 g of dimethylsulfoxide is added drop by drop to a mixture, heated at 180.deg. C, of 100 g of dimethylsulfoxide and 5 g of calcium hydroxide, over a period of 12 minutes. After a post-reaction period of 10 minutes at about 180.deg. C, the mixture is cooled. The precipitated melamine is removed by filtration, stirred up in water, and again filtered. After drying, 24.2 g or 38.4percent of melamine is obtained. **Patent**; **Suddeutsche Kalkstickstoff-Werke Aktiengesellschaft**; US4069383; (1978); (A1) English View in Reaxys
	Example Name C.6 Example Title Comparative Example 6 Comparative Example 6 An alkyd melamine coating composition was obtained in the same manner as in Example 5 except that the aqueous dispersion was replaced with 5 parts of the same pigment derivative as that used in Example 5.

	Patent; **TOYO INK MANUFACTURING CO., LTD.**; EP677556; (1995); (A2) English View in Reaxys
	Example Name 1; 2 EXAMPLE 1; An ammonia-saturated melamine melt with a starting content of 9500 ppm melam and 500 ppm melem with a temperature of 400.deg. C. and a pressure of 12 MPa was decompressed from one autoclave into a second autoclave, which contained ethylene glycol of 250.deg. C. at a pressure of 7 MPa. After a residence time of 30 minutes under these conditions, the resulting solution of melamine was cooled in ethylene glycol, and the crystallized melamine as well as the mother liquor were analyzed.In the mother liquor no decomposition products of ethylene glycol could be found.Likewise the crystallized melamine was free from oxotriazines, the melam content had dropped to below 1000 ppm, the melem content was <100 ppm.; EXAMPLE 2; A melamine-containing gas at 350.deg. C. having the composition of 2percent by volume melamine, 6percent by volume carbon dioxide and 92percent by volume ammonia was introduced into 150.deg. C. hot ethylene glycol at atmospheric pressure. From the resulting melamine/ethylene glycol solution having a melamine content of 6.5percent by weight the melamine was crystallized out by cooling it to 50.deg. C. After washing the melamine had a purity level of 99.8percent, in the mother liquor no oxotriazines or decomposition products of the ethylene glycol could be found. **in** ethylene glycol, T= 50 - 400 °C , p= 760 - 90008Torr , Purification / work up **Patent**; **Casale Chemicals S.A.**; US7153962; (2006); (B1) English View in Reaxys
	EXAMPLE; Using the equipment schematically described above and following the method of the invention, a melamine wet cake having a content of fine particles (diameter of less than 21 μm) of 2.5percent and a water content of 12percent (measured at 105.deg.C), wherein ammonia in a percentage of 14percent (by weight of such water) was dissolved, was continuously fed into the turbo-dryer T, at a rate of 80 Kg/h, simultaneously and co-currently relative to an air flow at 200.deg.C, having a rate of 300 Nm^3/h. The temperature of wall 9 was maintained at about 250.deg.C while the rotation speed of the bladed rotor 7 was kept constant at 700 rpm. After an average residence time of about 60 seconds inside the turbo-dryer T, a flow of air mixed with steam and a flow of melamine crystals, having an apparent density of 0.74, free of ammonia and having a humidity content of 0.04percent, were continuously discharged. The content of fine particles (diameter of less than 21 μm) of the dried product was of 3.4percent, its titre was 99.9percent and its grade of whiteness, measured according to APHA (that is, by visual comparison with a scale of specimens made of potassium chloroplatinat diluted in formaldehyde) was 10. , T= 200 - 250 °C , Turbo air drying, Purification / work up **Patent**; **Vomm Impianti e Processi S.P.A.**; EP1813604; (2007); (A1) English View in Reaxys
	Example Name 1 Example 1; An ammonia-saturated melamine melt with a starting content of 9500 ppm melam and 500 ppm melem with a temperature of 400^0C and a pressure of 12 MPa was decompressed from one autoclave into a second autoclave, which contained ethylene glycol of 250^0C at a pressure of 7 MPa. After a residence time of 30 minutes under these conditions, the resulting solution of melamine was cooled in ethylene glycol, and the crystallized melamine as well as the mother liquor were analyzed.In the mother liquor no decomposition products of ethylene glycol could be found.Likewise the crystallized melamine was free from EPO <DP n="12"/>oxotriazines, the melam content had dropped to below 1000 ppm, the melem content was < 100 ppm. **in** ethylene glycol, Time= 0.5h, T= 250 - 400 °C , p= 52505.3 - 90009Torr , Purification / work up **Patent**; **CASALE CHEMICALS S.A.**; WO2007/176; (2007); (A1) English View in Reaxys
	Example Name 2 Example 2; A melamine-containing gas at 350^0C having the composition of 2percent by volume melamine, 6percent by volume carbon dioxide and 92percent by volume ammonia was introduced into 150^0C hot ethylene glycol at atmospheric pressure. From the resulting melamine/ethylene glycol solution having a melamine content of 6.5percent by weight the melamine was crystallized out by cooling it to 50^0C. After washing the melamine had a purity level of 99.8percent, in the mother liquor no oxotriazines or decomposition products of the ethylene glycol could be found. **in** ethylene glycol, T= 50 - 350 °C , p= 760.051Torr , Purification / work up **Patent**; **CASALE CHEMICALS S.A.**; WO2007/176; (2007); (A1) English View in Reaxys

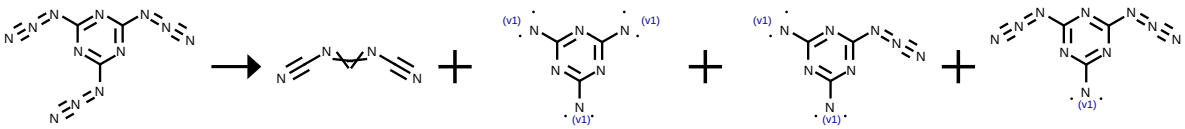
	Example Name 1; 2 A stream of 36,000 kg/h of an aqueous solution at70^{0}C containing 1.15 by weight of melamine, corresponding to 414.0 kg/h, and 0.5percent of OATs, corresponding to 180.0 kg/h, is sent to the ultrafiltration section in a 30,000 t/y of melamine run according to the state of the art.The permeate separated in the ultrafiltration section consists of a stream of 28,378 kg/h which is totally recycled to the purification and separation cycle of the melamine. It contains 1.16percent by weight of melamine, <n="24"/>corresponding to 327.9 kg/h of melamine which are then totally recovered, and 0.03percent by weight of OATs, corresponding to 8.5 kg/h.The corresponding retentate consists of a stream of 7,622 kg/h which is sent to the thermal decomposer. It contains 1.13percent by weight of melamine, corresponding to 86.1 kg/h, and 2.25percent by weight of OATs, corresponding to 171.5 kg/h which are thus totally destroyed in the decomposer. In order to minimize the fouling phenomena associated with the presence of OATs in colloidal form, the retentate, which is at 70^{0}C, is mixed with a stream of ammonia water having a flow-rate of 1,905 kg/h and a temperature of 170^{0}C. A stream is obtained having a flow- rate of 9,527 kg/h and a temperature of 9O^{0}C, which is pumped at a pressure of 82 bar and then heated to 290^{0}C in two heat exchange stations in series, the first fed with the solution leaving the decomposer and the second with diathermic oil; said stream is finally introduced into the decomposer (see stream (5) of figure 1) .The amount of melamine recovered in the ultrafiltration section is equal to 327.9/414.0*100 = 79percent.The capacity of 30,000 t/y of melamine corresponds, with an operating factor equal to 7,874 h/y, to an hourly <n="25"/>production of 3,810.0 kg/h of melamine. This production is obtained by feeding to the plant 12,306.3 kg/h of urea at 100percent, with a specific consumption equal to 12,306.3/3,810.0=3.23 kg/kg of melamine. As the stoichiometric specific consumption is equal to 2.86 kg/kg of melamine (see formula 1) , the efficiency of the melamine production process from urea is equal to 2.86/3.23*100 = 88.5percent. , Example 2 In a plant for the production of melamine having a potentiality equal to 30,000 t/y, equipped for activating the process according to the present invention, there are two ultrafiltration units.A stream of 36,000 kg/h of an aqueous solution at 7O^{0}C containing 1.15percent by weight , of melamine, corresponding to 414.0 kg/h, and 0.5percent by weight of OATs, corresponding to 180.0 kg/h, is sent to an ultrafiltration section consisting of two units situated in series, as per figure 3. The sum of the permeates obtained from the two ultrafiltration units consists as a whole of a stream of 33,877 kg/h which is totally recycled to the purification and separation cycle of the melamine. This stream contains 1.16percent by weight of melamine, corresponding to 391.4 kg/h which are then totally recovered, and 0.03percent by <n="26"/>weight of OATs, corresponding to 10.2 kg/h.The final retentate, leaving the second ultrafiltration unit, consists of a stream of 2,123 kg/h which is sent to the thermal decomposer. It contains 1.06percent by weight of melamine, corresponding to 22.6 kg/h, and 8.00percent by weight of OATs, corresponding to 169.8 kg/h which are thus totally destroyed in the decomposer.The final retentate, which is at 70^{0}C, is pumped under cold conditions at a pressure of 82 bar and then mixed with a stream of water having a flow-rate of 15,568 kg/h and a temperature of 320^{0}C. Said aqueous stream consists of a partial amount equal to 90percent of the liquid stream leaving the decomposer which is pumped at 113 bar and heated in a heat exchange station by means of diathermic oil. The mixture of the two streams has a flow-rate of 17,691 kg/h and a temperature of 29O^{0}C, and is introduced directly into the decomposer (see stream (7) of figure 3) .The amount of melamine recovered in the ultrafiltration section is equal to 391.4/414.0*100 = 95percent, against 79percent of the comparative example.The supplementary recovery of melamine obtained with the process according to the present invention is therefore equal to 391.4 - 327.9 = 63.5 kg/h; the hourly production of melamine therefore rises to 3,810.0 + 63.5 <n="27"/>= 3,873.5 kg/h, with an increase equal to 63.5/3,810.0*100 = 1.7percent with respect to the hourly production value corresponding to that obtained according to the state of the art. This higher production is obtained again by feeding 12,306.3 kg/h of urea at 100percent to the plant, with a specific consumption equal to 12,306.3/3,873.5 = 3.18 kg/kg compared with the value of 3.23 of the comparative example. As the stoichiometric specific consumption is equal to 2.86 kg/kg, the efficiency of the melamine production process from urea is equal to 2.86/3.18*100 = 89.9percent, against 88.5percent of the comparative example. , Purification / work up **Patent**; **EUROTECNICA MALAMINE LUXEMBURG, ZWEIGNIEDERLASSUNG IN ITTIGEN**; WO2009/7813; (2009); (A1) English View in Reaxys



Rx-ID: 7062663 View in Reaxys

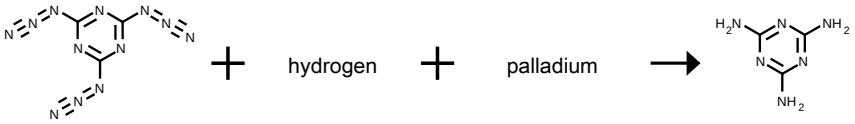
Yield	Conditions & References
	daneben unter bestimmten Bedingungen **Davis; Rosenquist**; Journal of the American Chemical Society; **vol.** 59; (1937); p. 2114

View in Reaxys



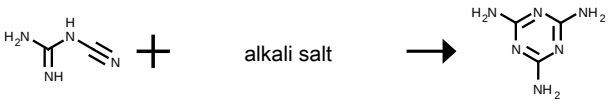
Rx-ID: 9653251 View in Reaxys

Yield	Conditions & References
	T= -253.15 °C , Photolysis, Product distribution **Sato, Tadatake; Narazaki, Aiko; Kawaguchi, Yoshizo; Niino, Hiroyuki; Bucher, Goetz; Grote, Dirk; Wolff, J. Jens; Wenk, Hans Henning; Sander, Wolfram**; Journal of the American Chemical Society; **vol.** 126; nb. 25; (2004); p. 7846 - 7852 View in Reaxys



Rx-ID: 5426148 View in Reaxys

Yield	Conditions & References
	Wienhaus; Ziehl; Chemische Berichte; **vol.** 65; (1932); p. 1465 View in Reaxys



Rx-ID: 5801947 View in Reaxys

Yield	Conditions & References
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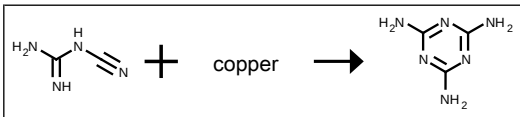

Rx-ID: 5801948 View in Reaxys

Yield	Conditions & References
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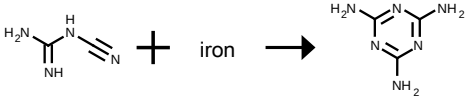

Rx-ID: 5801949 View in Reaxys

Yield	Conditions & References
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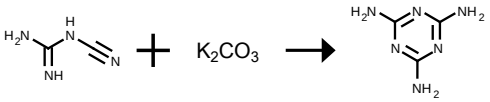

Rx-ID: 5801950 View in Reaxys

Yield	Conditions & References
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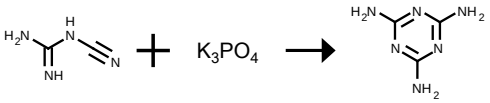
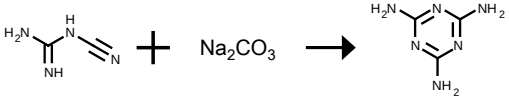


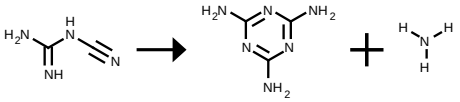
Rx-ID: 5801951 View in Reaxys

Yield	Conditions & References
	T= 180 - 185 °C **Patent**; **Am.Cyanamid Co.**; US2341180; (1941) View in Reaxys



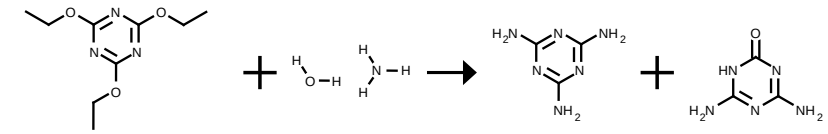
Rx-ID: 5801952 View in Reaxys

Yield	Conditions & References
	T= 180 - 185 °C **Patent**; **Am.Cyanamid Co.**; US2341180; (1941) View in Reaxys



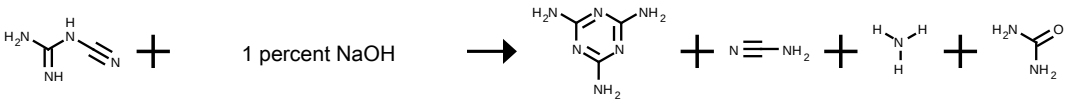
Rx-ID: 5817526 View in Reaxys

Yield	Conditions & References
	beim Erhitzen **Drechsel**; Journal fuer Praktische Chemie (Leipzig); **vol.** <2> 13; (1876); p. 331 View in Reaxys



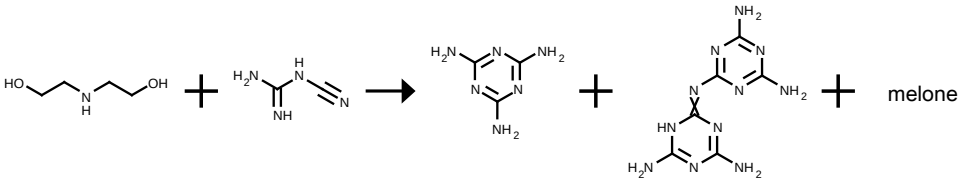
Rx-ID: 5682095 View in Reaxys

Yield	Conditions & References
	T= 170 - 180 °C **Ponomarew**; Chemische Berichte; **vol.** 18; (1885); p. 3267 View in Reaxys



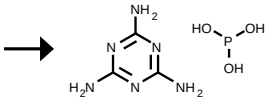
Rx-ID: 5957020 View in Reaxys

Yield	Conditions & References
	Geschwindigkeit der Zersetzung beim Kochen **Chastellain**; Helvetica Chimica Acta; **vol.** 18; (1935); p. 1298 View in Reaxys



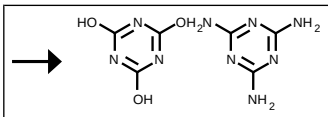
Rx-ID: 6215632 View in Reaxys

Yield	Conditions & References
	T= 240 °C **Patent**; **Am.Cyanamid Co.**; US2180295; (1939) View in Reaxys



Rx-ID: 25210926 View in Reaxys

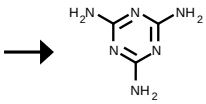
Yield	Conditions & References
82%	Example Name 2 Example Title EXAMPLE 2 STR15 EXAMPLE 2 STR15 1 liter of distilled water and 126 g of melamine (1 mole) are introduced into a 2-1 reactor equipped with a stirrer, a temperature sensor, a dropping funnel and a reflux condenser. Vigorous stirring is applied so as to disperse the melamine, and then 117.15 g of an aqueous solution containing 70percent phosphorous acid (82 g H_3PO_3: 1 mole) is added over 30 minutes. When the addition is completed, the reaction mixture is kept well stirred at ambient temperature for 3 hours. The product is filtered off, washed and dried under reduced pressure at 100.deg.-120.deg. C. 171 g of melamine phosphite are obtained. Yield: 82percent **Patent**; **Atochem**; US4879327; (1989); (A1) English View in Reaxys
	Example Name 3 Example Title EXAMPLE 3 EXAMPLE 3 Preparation of melamine phosphite using a procedure similar to Example 2 except that the quality of water is halved: 500 ml for 1 mole of melamine. **Patent**; **Atochem**; US4879327; (1989); (A1) English View in Reaxys



Rx-ID: 8364435 View in Reaxys

Yield	Conditions & References
	Biuretphosphat, Erhitzen **Koryakin et al.**; J. Appl. Chem. USSR (Engl. Transl.); **vol.** 48; (1975); p. 1532,1588 View in Reaxys
	Example Name 3 Example Title Example 3

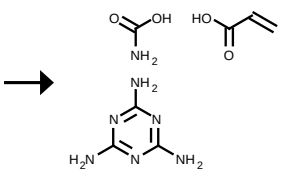
	Example 3 Using 78.58 g of the comminuted mixture obtained in Example 1, 77.45 g of melamine cyanurate were obtained in a similar manner to Example 1 except that the comminuted mixture was heated at 300.deg. C. for 4 hours. The yield, purity and average particle size were 98.6percent 99.1percent and 6.21 μm, respectively. **Patent**; **Mitsui Toatsu Chemicals, Inc.**; US5493023; (1996); (A1) English View in Reaxys



1-[[2-Diethylamino)ethyl]amino]-4-[(methyl-amino)methyl]thioxanthen-9-one

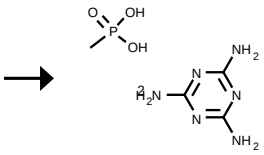
Rx-ID: 24145617 View in Reaxys

Yield	Conditions & References
	Example Name 53 Example Title Preparation of 1-[[2-Diethylamino)ethyl]amino]-4-[(methylamino)methyl]thioxanthen-9-one EXAMPLE 53 Preparation of 1-[[2-Diethylamino)ethyl]amino]-4-[(methylamino)methyl]thioxanthen-9-one This compound was prepared as described in U.S. Pat. No. 5,346,917 (to Miller et al.); Example 5, mp 241-243.deg. C. **Patent**; **Amersham Health AS**; US6498945; (2002); (B1) English View in Reaxys



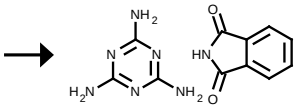
Rx-ID: 24457942 View in Reaxys

Yield	Conditions & References
	Example Name 2 Example Title EXAMPLE 2 EXAMPLE 2 A 250 ml flask was flushed with dry air and charged 19.5 g of Cymel, 300, 21.6 g of 2-ethylhexyl carbamate, 0.012 g of phenothiazine and heated to 95.deg. C. for 15 minutes to get a clear solution. Thereafter, 0.28 g of p-toluenesulfonic acid was added and heating was continued for 15 minutes. The pressure was gradually lowered to 50 mm. Hg to collect MeOH distillate. When the theoretical amount of distillate was collected, the reaction mixture was cooled to 65.deg. C. and 15.0 g of 2-hydroxyethyl acrylate was added to the reactor with stirring. The pressure was reduced to 50 mm. Hg to collect MeOH byproduct. At the end of 45 minutes, no more MeOH came out and the reaction was stopped. To the cooled reaction products was added 100 ml of $CH_2 Cl_2$. Two separate 25 ml washes of 5 percent wt. $Na_2 CO_3$ solution was used to neutralize p-toluenesulfonic acid. The organic layers were separated and dried over anhydrous $K_2 CO_3$. The above mixture was filtered and the solvent was removed to give 42 g of a final productproduct of melamine acrylate carbamate (hereinafter called compound "M1") **Patent**; **Cytec Technology Corp.**; US5410051; (1995); (A1) English View in Reaxys



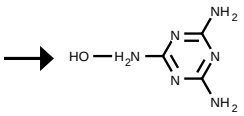
Rx-ID: 24933161 View in Reaxys

Yield	Conditions & References
	Example Name 1 Example Title EXAMPLE 1 EXAMPLE 1 A solution of methylphosphonic acid (28.8 parts, 0.3 mol) in water (50 milliliters) is added dropwise to a suspension of melamine (37.8 parts, 0.3 mol) in water (500 milliliters) at refluxing temperatures over 30 mins. A clear solution is formed. Heating is continued for a further 2 hours and the reaction mixture is evaporated to dryness under reduced pressure. The solid product is collected, washed with methanol and dried at 80.deg. C. under vacuum to give 64 parts of methylphosphonic acid melamine salt having melting point >250.deg. C. Calculated for $C_4H_{11}N_6O_3P$: percentC 21.62, percentH 4.95, percentN 37.84, percentP 13.96. Found: percentC 21.51, percentH 4.80, percentN 37.64, percentP 13.66. **Patent**; **Ciba-Geigy Corporation**; US5093494; (1992); (A1) English View in Reaxys



Rx-ID: 25389318 View in Reaxys

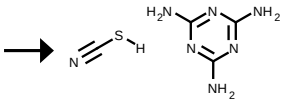
Yield	Conditions & References
	A compound defined by the formula STR2 wherein each X represents a member selected from the group consisting of hydrogen and halogen atoms. 2. Melamine-mono(phthalimide). 3. Melamine-mono(tetrachlorophthalimide). 4. Melamine-mono(tetrabromophthalimide). **Patent**; **American Cyanamid Company**; US4226989; (1980); (A1) English View in Reaxys



Rx-ID: 25882328 View in Reaxys

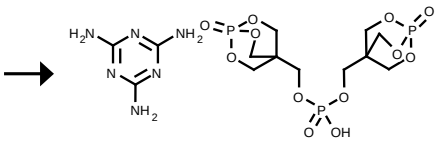
Yield	Conditions & References
	Example Name 1.a Example Title a. a. Preparation of methylol melamine: 973 grams of 37 percent strength aqueous formaldehyde was charged to a glass reactor equipped with stirrer, thermometer, heating mantle, condenser, charge funnels, distillate receiver, vacuum pump and gauge. The temperature was adjusted to 37 .deg.C, and 1.0 ml of 50 percent sodium hydroxide was added, followed by the addition of 126 g of melamine. The mixture was heated to 90 .deg.C over approximately 10 minutes, and held at this temperature for 15 minutes to react the melamine and formaldehyde to form methylol melamine. Next, 2000 g of water at room temperature was added over approximately 40 minutes, cooling the contents to about 40 .deg.C; the mixture became a thick slurry as methylol melamine precipitates. The slurry was allowed to settle at ambient temperature, and the supernatant was decanted. The thickened slurry was next filtered using a Buchner funnel and vacuum filter flask to recover a wet cake, which was rinsed with methanol to displace water. The resulting cake was spread onto a pan to dry at ambient temperature to constant weight. The resulting methylol melamine powder was dry and free flowing.

	Patent; **CYTEC SURFACE SPECIALTIES, S.A.**; EP1268592; (2005); (B1) English View in Reaxys



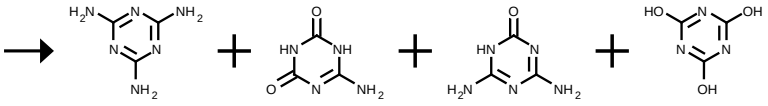
Rx-ID: 8347463 View in Reaxys

Yield	Conditions & References
	Melamin, Thioharnstoff, Erhitzen in Phenol bzw. DMF **Honda et al.**; Kogyo Kagaku Zasshi; **vol.** 71; (1968); p. 529,533, 534 View in Reaxys



Rx-ID: 23019191 View in Reaxys

Yield	Conditions & References
	Example Name 3; 4 **Patent**; **Chung-Shan Institute of Science and Technology**; US2004/82782; (2004); (A1) English View in Reaxys



Rx-ID: 24735212 View in Reaxys

Yield	Conditions & References
	in water, T= 60 °C , p= 15001.5Torr , Purification / work up **Patent**; **AMI AGROLINZ MELAMINE INTERNATIONAL GMBH**; WO2006/42760; (2006); (A1) German View in Reaxys