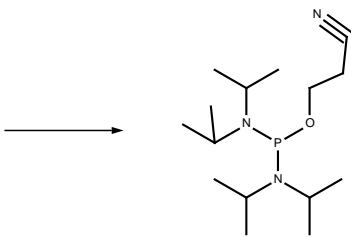
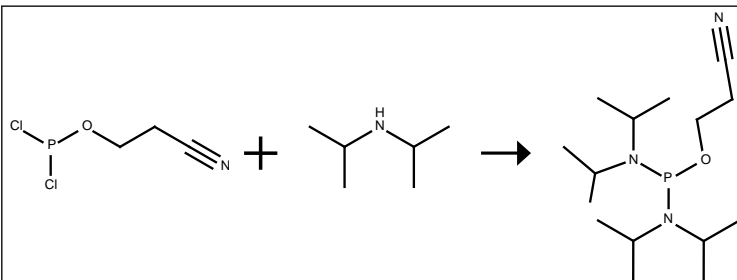


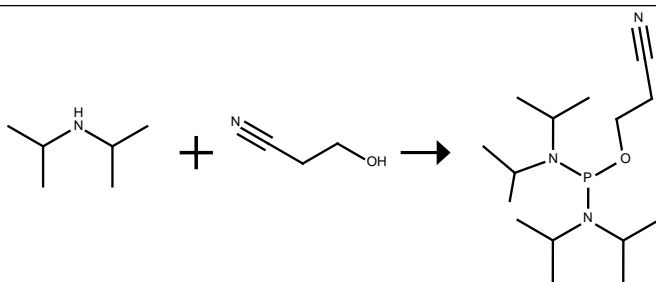
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Yield	Conditions & References
88.5 %	<p>1 : Example 1; Preparation and Stabilization of 2-Cyanoethyl-N,N,N',N'-tetraisopropylphosphoro-diamidite (PDA)</p> <p>Example 1; Preparation and Stabilization of 2-Cyanoethyl- N, N, N', N'-tetraisopropylphosphoro-diamidite (PDA) 2-(cyanoethoxy) dichlororophosphine (CDP) can be easily prepared by various processes described in the prior art. For example, the reaction of phosphorous trichloride (PCl₃) with either 2-cyanoethanol or trimethylsilyloxypropionitrile (TMSOP) gives CDP in good yield. If desired, the product can be purified with careful vacuum distillation. The CDP used in this example, and Example 2 was obtained by reacting PCl₃ with TMSOP in a molar ratio of 2: 1 in acetonitrile at 5°C. Upon completion of the reaction, the solvent and the excess POS were removed by distillation. The crude product was further purified by vacuum distillation, and gave CDP with greater than 98percent purity. A solution comprising 1.80 moles of freshly distilled 2-(cyanoethoxy) dichlorophosphine (CDP) (310 grams) in 2.9 Kg of tetrahydrofuran (THF) as solvent was stirred and cooled to -12 °C under a nitrogen blanket and then treated with 8.12 moles (820 grams) of diisopropylamine over a period of ninety minutes, maintaining a temperature of -10 °C. Stirring of the slurry was continued at ambient temperature for a period of 72 hours, at which time examination by 31P NMR showed no reaction intermediates remaining. The slurry was filtered through a sintered glass filter to remove diisopropylamine hydrochloride (DIPA. HCl) solids. The clear filtrate was passed through a column of 350 grams of Brockmann activated neutral alumina that had been dried at 165°C at less than 1 Torr for 16 hours. The filtrate was concentrated on a rotary evaporator at a maximum bath temperature of 45°C. The distilled THF was used to rinse the DIPA. HCl and the alumina to collect additional product, which was combined with the first pass product and then concentrated until the vacuum reached 3 Torr. The yield of the pale yellow syrup was 485 grams (88.5percent of theoretical) and the initial assay by 31P NMR was 99.7percent. Table 1 shows a comparison of the stability of this material (A) vs. a sample prepared in the same manner, but without the alumina treatment (B).</p> <p>in tetrahydrofuran, Time= 73.5h, T= -10 - 20 °C</p> <p>Patent; RHODIA, INC.; WO2003/106468; (2003); (A1) English View in Reaxys</p>
79 %	<p>in diethyl ether, Time= 12h, T= 20 °C</p> <p>Ching, Shi Min; Tan, Wan Jun; Chua, Kim Lee; Lam, Yulin; Bioorganic and Medicinal Chemistry; vol. 18; nb. 18; (2010); p. 6657 - 6665 View in Reaxys</p>
64 %	<p>in diethyl ether, 1 h, -10 degC, r.t., overnight</p> <p>Bannwarth, Willi; Trzeciak, Arnold; Helvetica Chimica Acta; vol. 70; (1987); p. 175 - 186 View in Reaxys</p>
	<p>3 : 2-Cyanoethyl tetraisopropylphosphorodiamidite [0260] Diisopropylamine (1 L, 7.12 mol), hexane (1 L) were cooled to 0° C. Phosphorus oxychloride (4.5 ml) was added and the mixture was stirred for 20 min. The crude dichlorophosphite (258 g, 1.5 mol) was added with temperature below 0° C. over 1 hour. The reaction mixture was stirred at room temperature overnight and poured into hexane (1 L). The mixture was washed with water (1 L) and acetonitrile-water (70:30, v/v, 4.x.500 ml). The hexane layer was evaporated to give the desired product as a colorless liquid (239 g).</p> <p>Stage 1: With trichlorophosphate in hexane, Time= 0.333333h, T= 0 °C Stage 2: in hexane, Time= 6h, T= 0 - 20 °C</p> <p>Patent; Song, Quanlai; Ross, Bruce; US2003/225284; (2003); (A1) English View in Reaxys</p>
	<p>2 : 2-Cyanoethyl tetraisopropylphosphorodiamidite</p>

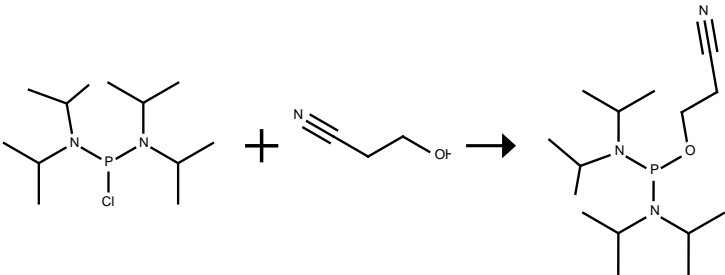
	<p>[0257] A mixture of diisopropylamine, hexane and anhydrous potassium carbonate was stirred at -15° C. for 20 min. The crude dichlorophosphite was added at a temperature below -5° C. for 20 min. The reaction mixture was stirred at 0° C. for 2 h, then allowed to warm to room temperature overnight, and then poured into hexanes (5 L). The mixture was washed (2 L) with water and acetonitrile-water (60:40, v/v, 4.x.1 L). The hexane layer was evaporated to give the desired product as a clear, colorless liquid (1080 g, yield: 72percent).</p> <p>Stage 1: With potassium carbonate in hexane, Time= 0.333333h, T= -15 °C Stage 2: in hexane, T= -5 - 20 °C</p> <p>Patent: Song, Quanlai; Ross, Bruce; US2003/225284; (2003); (A1) English View in Reaxys</p>
	<p>1 : 2-Cyanoethyl tetraisopropylphosphorodiamidite</p> <p>[0253] A mixture of diisopropylamine (4.0 kg, 39.5 mol), hexanes (2 L) and anhydrous potassium carbonate (200 g) was stirred at -15° C. for 20 min. The crude dichlorophosphite was added to the diisopropylamine mixture while maintaining the reaction temperature below 0° C. The reaction mixture was stirred at 0° C. for 2 h and then allowed to warm to room temperature overnight and then poured into hexanes (18 L). The mixture was washed with water (4 L) and acetonitrile-water (60:40, v/v, 4.x.2 L). The hexane layer was evaporated and dried under vacuum (25° C. at 0.1 mmHg for 2 h) to give the desired product as a colorless, clear liquid (1870.5 g, total yield: 62percent).</p> <p>Stage 1: With potassium carbonate in hexanes, Time= 0.333333h, T= -15 °C Stage 2:, T= -5 - 20 °C</p> <p>Patent: Song, Quanlai; Ross, Bruce; US2003/225284; (2003); (A1) English View in Reaxys</p>
	<p>4 : 2-Cyanoethyl tetraisopropylphosphorodiamidite</p> <p>[0264] Phosphorus oxychloride (25 ml) was added to the solution of diisopropylamine (5.5 L, 39.2 mol) and hexanes (4 L) at 0° C. and the mixture was stirred for 20 min. The above crude dichlorophosphite was added while maintaining the reaction temperature below 10° C. over 1 hour. The reaction mixture was then allowed to warm to room temperature and stirred for 5 h. The mixture was poured into hexanes (8 L). The mixture was washed with water (6 L), acetonitrile-0.1 N NaOH (70:30, v/v, 4.x.2 L) and acetonitrile-water (70:30, v/v, 2.x.2 L). The hexane layer was evaporated and dried under vacuum (25° C./0.5 mmHg/2 h) to give the desired product as a colorless, clear liquid (1.88 kg).</p> <p>Stage 1: With trichlorophosphate in hexanes, Time= 0.333333h, T= 0 °C Stage 2: in hexanes, Time= 6h, T= 0 - 20 °C</p> <p>Patent: Song, Quanlai; Ross, Bruce; US2003/225284; (2003); (A1) English View in Reaxys</p>

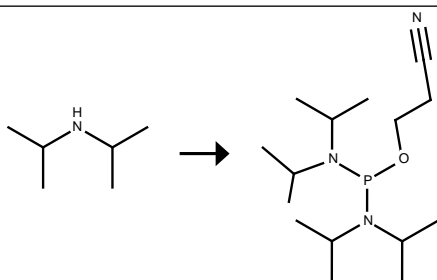

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Yield	Conditions & References
42 %	<p>Stage 1: With phosphorus trichloride in acetonitrile, Time= 1h, Inert atmosphere Stage 2: in hexane, acetonitrile, Time= 1.5h, Inert atmosphere</p> <p>Winkler, Johannes; Giessrigl, Benedikt; Novak, Clemens; Urban, Ernst; Noe, Christian R.; Monatshefte fur Chemie; vol. 141; nb. 7; (2010); p. 809 - 815 View in Reaxys</p>
31 %	<p>Stage 1: With N-ethyl-N,N-diisopropylamine, 1-butyl-methylpyrrolidinium bis(trifluoromethylsulfonyl)amide, phosphorus trichloride, Time= 0.5h, Inert atmosphere Stage 2: Time= 2h, Inert atmosphere, chemoselective reaction</p>

	<p>Crossey, Kerri; Migaud, Marie E.; Chemical Communications; vol. 51; nb. 55; (2015); p. 11088 - 11091 View in Reaxys</p>
	<p>With phosphorus trichloride, 1.) Et₂O, -78 deg C, 1 h, 24 deg C, 1 h, 2.) -20 deg C, 10 min, 24 deg C, 1.5 h, Yield given. Multistep reaction</p> <p>Gu, Qu-Ming; Prestwich, Glenn D.; Journal of Organic Chemistry; vol. 61; nb. 24; (1996); p. 8642 - 8647 View in Reaxys</p>
	<p>1.a : a. a. Bis-(diisopropylamino)-(β-cyanoethoxy)phosphane 3 Preparation of the titled compound was in accord with the procedure of Kraszewski and Norris, Nucleic Acids Research Sump. Ser. 18: 177-80 (1987). β-Cyanoethanol (7 g; 0.1 mole) in absolute CH₃ CN (40 ml) was added dropwise within 30 min to a solution of freshly distilled PCl₃ (40 ml; 0.4 mole) at room temperature ("r.t.") and under nitrogen atmosphere. After stirring for 3.5 h, the solvent and excess PCl₃ were removed in high vacuum, the residue was dissolved in 450 ml of absolute ether and at -10° C. reacted with N,N-diisopropylamine (127 ml; 0.9 mole) by dropwise addition within 1 h under nitrogen atmosphere. The reaction mixture was stirred at -10° C. for 30 min and at r.t. for 15 h. The precipitate was filtered under nitrogen and the solvent was removed in vacuo. The yellow crude product was fractionally distilled over CaH₂ to give 14.7 g (49percent) of pure 3 of b.p. 114°-118° C. This reagent was stored at -20° C. under nitrogen. ¹ H-NMR (CDCl₃): 3.75 (s, 2H, CH₂); 3.52 (m, 4H, 4 N--CH); 2.60 (t, 2H, β-CH₂); 1.17+1.14 (2d, 24H, 4 N--C(CH₃)₂). ³¹ P-NMR (CDCl₃): 124.6 ppm.</p> <p>With phosphorus trichloride in acetonitrile</p> <p>Patent; Temple University-Of The Commonwealth System of Higher Education; US5863905; (1999); (A) English View in Reaxys</p>
	<p>1 : Example 1; Manufacture of 2-cyanoethyl tetraisopropyl phosphorodiamidite using hexane co-solvent 27.5 g of phosphorus trichloride at ambient temperature was added to a stirred mixture of acetonitrile (200g) and diisopropylamine (121g) over 1 hour. 200g of hexane is then added followed by 14g of hydroxypropionitrile at ambient temperature over 30 minutes. The reaction mixture is then stirred for 1 hour and is then filtered to remove the solid by-product. The upper hexane layer of the filtered reaction mixture is separated and subjected to vacuum stripping to remove the hexane solvent. This leaves 20g of 2-cyanoethyl tetraisopropylphosphorodiamidite which has a purity of 96. 9percent when analysed by 31P-NMR. The lower acetonitrile layer is stirred with a further 200g of hexane for 2 hours. The upper hexane layer from this re- extraction contains product of 98percent purity when assayed by 31P-NMR. Following vacuum stripping a further 11g of high purity 2-cyanoethyl tetraisopropylphosphorodiamidite is isolated.</p> <p>Stage 1: With phosphorus trichloride in acetonitrile, Time= 1h, T= 20 °C Stage 2: in hexane, acetonitrile, Time= 1.5h, T= 20 °C</p> <p>Patent; RHODIA CONSUMER SPECIALTIES LIMITED; HARRIS, Christopher, John; JACKSON, Sheena, Lesley; WILSON, David, James; WO2004/58779; (2004); (A1) English View in Reaxys</p>
	<p>2 : Example 2; Manufacture of 2-cyanoethyl tetraisopropyl phosphorodiamidite using heptane co-solvent 27.5g of phosphorus trichloride was added to a stirred mixture of 200g of acetonitrile and 121g of diisopropylamine at ambient temperature. 200g of heptane was then added to this mixture followed by 14.3g of hydroxypropionitrile at ambient temperature over 30 minutes. The reaction mixture was then stirred for an hour and was then filtered to remove the solid by-product. The upper heptane layer was then separated and subjected to vacuum stripping to remove the heptane solvent leaving 22g of 2-cyanoethyl tetraisopropylphosphorodiamidite which had a purity of 96.7percent when assayed by 31P-NMR.</p> <p>Stage 1: With phosphorus trichloride in acetonitrile, T= 20 °C Stage 2: in n-heptane, acetonitrile, Time= 1.5h, T= 20 °C</p>

	<p>Patent: RHODIA CONSUMER SPECIALTIES LIMITED; HARRIS, Christopher, John; JACKSON, Sheena, Lesley; WILSON, David, James; WO2004/58779; (2004); (A1) English View in Reaxys</p>
	<p>1 :Example 1 First Step: PCl_3 (8.09 g; 0.0589 moles) was added slowly to a mixture of MeCN (200 g) and diisopropylamine (DIPA) (120.84 g; 1.194 moles). The resultant mixture was stirred for 5 hours. The reaction mixture obtained was then vacuum distilled, whereby a purified DIPA/MeCN solution was obtained (163.97 g, namely 41 wt percent DIPA determined by ^1H NMR). Second Step: PCl_3 (15.07 g; 0.110 moles) was added slowly to the purified DIPA/MeCN solution obtained in the first step (95.89 g MeCN/66.63 g DIPA, 0.658 moles). The reaction mixture was left stirring overnight. Third Step: Heptane (110 g) was added to the reaction mixture obtained in the second step and then cyanoethanol (7.64 g, 0.107 moles) was added slowly Recovery of the Phosphorodiamidite Solid by-products of the reaction were removed by filtration and the filtrate was then washed (1 H_2O wash and then 2 MeCN/H_2 washes and then a final MeCN wash). Heptane was removed under vacuum to give the crude product as a clear colourless liquid.</p> <p>Stage 1: With phosphorus trichloride in acetonitrile Stage 2: in n-heptane, acetonitrile</p> <p>Patent: RHODIA OPERATIONS; WOODWARD, Gary; (4 pag.); US2016/333034; (2016); (A1) English View in Reaxys</p>

		Rx-ID: 3538067 View in Reaxys 3/7
Yield	Conditions & References	
	<p>With triethylamine in diethyl ether, Ambient temperature</p> <p>Hamamoto, Shoji; Takaku, Hiroshi; Chemistry Letters; (1986); p. 1401 - 1404 View in Reaxys</p>	
	<p>b : Step b)</p> <p>Triethylamine (49.4g), toluene (649.5g) and calcium hydride (5g) were charged to a nitrogen-flushed, 1 L round-bottom flask equipped with a magnetic stirrer and cold-finger distillation head attached to an N_2 bubbler and the mixture heated under TOTAL REFLUX (98C) for 2 hrs to remove all traces of water. The dried mixture was distilled into an oven-dried, nitrogen-flushed, 2L 3-neck, jacketed round-bottom flask equipped with a mechanical stirrer, a thermometer and a 50 mL pressure-equalizing addition funnel attached to an N_2 bubbler and the mixture cooled to below-15C using a circulating chiller pumping ethylene glycol/water through the reactor jacket and the product of step (a) (130. 3g) added. Neat 2-cyanoethanol (39.9g) was added from the addition funnel over approximately 30 min, keeping the temperature BELOW-10C. The mixture was stirred under nitrogen for 18 hrs at-15 TO-18C to complete the reaction. The mixture was warmed to ambient temperature and pressure-filtered under nitrogen to remove triethylamine hydrochloride salt, all equipment being oven-dried before use. The toluene was stripped out on a rotary evaporator (bath temperature ca. 50C). The vacuum was broken with nitrogen and the distillation vessel connected via a cold trap directly to a vacuum pump and residual toluene removed to yield 139.5g of crude product. The crude product was distilled through a wiped-film evaporator (heated zone 70C ; pressure 0.008 mmHg) over 1.5 hrs to afford 115. 9g of product. If desired, the product can be further purified by flash chromatography, for example using pentane and dry basic alumina, and additional wiped-film distillations.</p> <p>With triethylamine in toluene, Time= 18.5h, T= -18 - -10 °C , Nitrogen atmosphere</p> <p>Patent: AVECIA LIMITED; WO2004/55030; (2004); (A1) English View in Reaxys</p>	



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Yield Conditions & References

Reaction Steps: 2

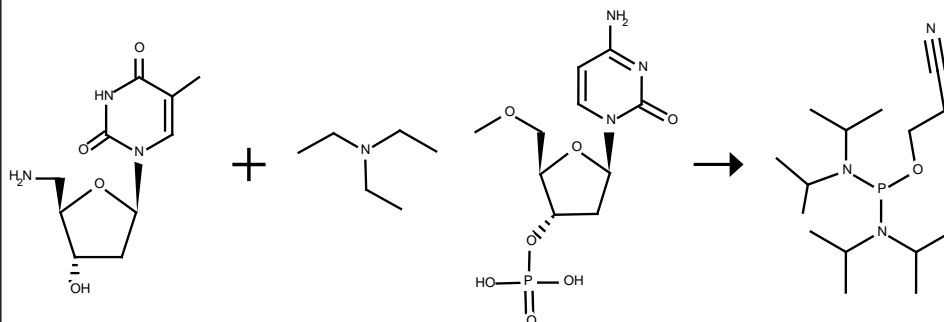
1: 60 percent / phosphorus trichloride / diethyl ether / 12 h / Heating

2: triethylamine / diethyl ether / Ambient temperature

With triethylamine, phosphorus trichloride **in** diethyl ether

Hamamoto, Shoji; Takaku, Hiroshi; Chemistry Letters; (1986); p. 1401 - 1404

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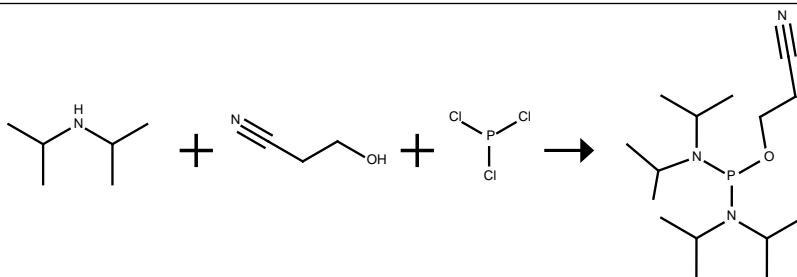
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Yield Conditions & References

With HEPES buffer, cetyltrimethylammonium bromide, 1-ethyl-(3-(3-dimethylamino)propyl)-carbodiimide hydrochloride **in** hexane, pentan-1-ol, T= 25 °C , variation of condition, Product distribution

Boehler, Christof; Bannwarth, Willi; Luisi, Pier Luigi; Giustini, Mauro; Helvetica Chimica Acta; **vol.** 76; nb. 3; (1993); p. 1341 - 1351

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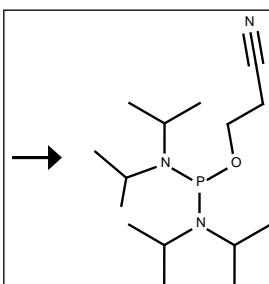
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Yield Conditions & References

With pyridine, 1.a) Et_2O , -78 deg C, 1 h, 1.b) room temperature, 2.a) Et_2O , -10 deg C, 1 h, 2.b) room temperature, Yield given. Multistep reaction

Ji; Bannwarth; Luu; Tetrahedron; **vol.** 46; nb. 2; (1990); p. 487 - 502

[View in Reaxys](#)


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Yield	Conditions & References
100 %	<p>2</p> <p>Patent; RHODIA, INC.; WO2003/106468; (2003); (A1) English View in Reaxys</p>
76.93 %	<p>1 : 1.1</p> <p>In a 500 ml. 3-necked flask fitted with a temperature probe, a condenser, and an addition funnel was placed 42.47 g of 2,2'-methylene-bis-(4,6-di-tert-butylphenol) and 111.26 g of tributylamine. The reaction mixture was stirred well with a magnetic stir bar and 33.71 g of neopentylglycol monochlorophosphite was placed in the addition funnel and added into the reaction mixture during about 5 minutes. The reaction flask was heated slowly to about 95-103°C and held for nearly for 4 hours. Reaction mixture was allowed to cool to about 35°C and no solids were formed. About 100 ml. of heptane was added into the reaction mixture, stirred, filtered out the precipitated salts and the heptane solubles were stripped off to dryness. The oily residue was purified by adding about 150 ml. of acetonitrile and slowly heated to dissolve completely. Upon cooling to room temperature the product obtained was filtered through a sintered glass funnel to isolate white colored product and dried to collect 53.00g (76.93 percent yield) of the bisphosphite, m.p. 166-167.5°C. A sample crystallized from heptane as white crystalline platelets had m.p. 166-167.5°C.</p> <p>Patent; GENERAL ELECTRIC COMPANY; EP940407; (1999); (A1) English View in Reaxys</p>
65%	<p>2 : EXAMPLE 2</p> <p>Under an atmosphere of nitrogen, a cold (-35° C.) anhydrous diethyl ether solution (20 mL) of 2,2'-dihydroxy-1,1'-binaphthalene-3,3'-bis(diphenylether) (0.405 g, 0.65 mmol) was added to the phosphochlorodite of 5,6,7,8-tetrahydro-1-naphthol (0.588 g, 1.63 mmol) dissolved in diethyl ether (10 mL). While maintaining this temperature, triethylamine (0.23 mL, 1.63 mmol) was added dropwise to the above mixture resulting in the formation of a white precipitate. After stirring at room temperature for three hours, the reaction mixture was filtered through a pad of basic alumina and Celite.(R).. The filtrate was evaporated to yield the desired diphosphite as a white powder (0.537 g, 65percent). ³¹P {¹H} NMR (202.4 MHz, C₆D₆): 132.75 ppm.</p> <p>Patent; E. I. du Pont de Nemours and Company; US6380421; (2002); (B1) English View in Reaxys</p>
58%	<p>3 : EXAMPLE 3</p> <p>EXAMPLE 3</p> <p>Under an atmosphere of nitrogen, a cold (-35° C.) anhydrous diethyl ether solution (5 mL) of 2,2'-dihydroxy-1,1'-binaphthalene-3,3'-bis(diphenyl) (0.050 g, 0.08 mmol) was added to the phosphochlorodite of 5,6,7,8-tetrahydro-1-naphthol (0.076 g, 0.21 mmol) dissolved in diethyl ether (5 mL). While maintaining this temperature, triethylamine (0.03 mL, 0.21 mmol) was added dropwise to the above mixture resulting in the formation of a white precipitate. After stirring at room temperature for three hours, the reaction mixture was filtered through a pad of basic alumina and Celite.(R).. The filtrate was evaporated to yield the desired diphosphite as a white powder (0.043 g, 58percent). ³¹P {¹H} NMR (202.4 MHz, C₆D₆): 127.83, 132.14, 132.60 (major), 133.66, 141.51, 143.99 ppm.</p> <p>Patent; E. I. du Pont de Nemours and Company; US6380421; (2002); (B1) English View in Reaxys</p>

	<p>1 : Preparation of the Diphosphite of (s)-(-)-1,1'-Bi-2-naphthol and Compound I Where R₂ =R₃ =t-butyl and R₁ is methyl</p> <p>EXAMPLE 1</p> <p>Preparation of the Diphosphite of (s)-(-)-1,1'-Bi-2-naphthol and Compound I Where R₂ =R₃ =t-butyl and R₁ is methyl</p> <p>A 0.881 g (1.75mmol) portion of 2,2'-ethyldinebis(4,6-di-t-butylphenyl) chlorophosphite (I) (mp 195°-229° C.) was combined with 0.249 g (0.87 mmol) of (S)-(-)-1,1'-bi-2-naphthol and 15.205 g of dry tetrahydrofuran in a 50-ml single-necked flask in a nitrogen-filled glove box.</p> <p>The clear colorless solution was then treated with 0.697 g (6.89 mmol) of dry triethylamine.</p> <p>After stirring the mixture for 24 hr at room temperature, the mixture was filtered in the glove box through a 0.45-micron syringe filter to remove the white triethylamine hydrochloride by-product.</p> <p>The clear colorless filtrate was evaporated to dryness under vacuum (0.2 torr/40° C.) to obtain 1.205 g of white crystalline diphosphite (B) having a melting range of 114°-170° C.</p> <p>Patent; Ethyl Corporation; US5210243; (1993); (A) English View in Reaxys</p>
	<p>IX : Beta-Cyanoethyl Phosphoramidite Method.</p> <p>The ³¹ P NMR (CDCl₃) showed a single peak at 178.8 ppm (reference 85percent H₃ PO₄).</p> <p>To 28 g (163 mmol) of this compound dissolved in 300 mL of anhydrous diethyl ether and stirred under N₂ at -20° C. was added dropwise 96 mL (685 mmol, 4.2 equiv) of diisopropylamine.</p> <p>The ice bath was removed, and the mixture was stirred for 1 h.</p> <p>The ether solution was transferred with filtration under N₂ pressure to a dry flask.</p> <p>The remaining salt was washed twice with 70-mL portions of anhydrous ether which was transferred as above.</p> <p>The solution was concentrated on a rotary evaporator and filtered into a small, dry flask.</p> <p>The liquid was stirred under vacuum for 20 min and then distilled under vacuum (400-500 mT) with the falling-film distillation apparatus with refluxing toluene as the heat source to give 18.5 g (61 mmol, 37percent yield) of clear, colorless product.</p> <p>The ³¹ P NMR (CDCl₃) spectrum showed a single peak at 123.6 ppm (reference 85percent H₃ PO₄).</p> <p>Compound 2 from Example VII, (5-DMT-6-pentafluorophenoxy-guanine-nucleoside) was then reacted with the 2-cyanoethyl N,N,N',N'-tetraisopropylphosphorodiamidite prepared above.</p> <p>Patent; Rutgers, The State University; US5412088; (1995); (A) English View in Reaxys</p>
	<p>3 : Example 3; Purification of low purity 2-cyanoethyl tetraisopropylphosphorodiamidite</p> <p>60g of low purity 2-cyanoethyl tetraisopropylphosphorodiamidite (92percent purity when assayed by 31P-NMR containing 1. 3percent diester) was added to a mixture of 200g acetonitrile and 200g of heptane after stirring for ten minutes the upper heptane layer was separated and the lower acetonitrile layer stirred with a further 200g of heptane for a further 10 minutes. The second heptane fraction was then separated and the two heptane fraction subsequently combined and subjected to vacuum stripping to remove heptane solvent. 30g of 2-cyanoethyl tetraisopropylphosphorodiamidite was obtained at a purity of 98.3percent when assayed by 31P-NMR. This extracted phosphorodiamidite compound contained less than 0.1percent of the diester impurity.</p> <p>, Purification / work up</p> <p>Patent; RHODIA CONSUMER SPECIALTIES LIMITED; HARRIS, Christopher, John; JACKSON, Sheena, Lesley; WILSON, David, James; WO2004/58779; (2004); (A1) English View in Reaxys</p>