PRODUCT OVERVIEW

emp BIOTECH

Synthesis Reagents

For Automated Oligonucleotide Syntheses

excellence made possible

emp BIOTECH

Synthesis Reagents

For Automated Oligonucleotide Syntheses

Phosphoramidites

***emp** BIOTECH* is proud to announce that it has been appointed by **Hongene Biotech Corporation** of Shanghai as its exclusive distributor in Europe.

Established in 1998, **Hongene** operates an ISO 9001:2015 certified and vertically integrated manufacturing plant for chemical synthesis of pharmaceutical-grade phosphoramidites and enzymatic production of nucleosides and nucleotides. Its state-of-the-art facility offers a fully backintegrated supply chain, up-to-date validation systems (QC/ SOP/ Equipment, etc.) with stringent quality control systems (LC-MS/KF/1 H-NMR/IR/GC/HPLC/AAS) all to ensure the highest standards are maintained throughout its entire product range.

Nucleoside phosphoramidites are available in pack sizes ranging from 1 gram to 10 kilograms. They are conveniently packaged under inert atmosphere in ready-to-use bottles for ÄKTA, MerMade, Dr. Oligo and other synthesizers.

The available range of phosphoramidites includes standard DNA, RNA, 2'-OMethyl, 5'-Methyl, 2'-MOE, LNA, 2'-Fluoro, 5'-Amino modifier, Reverse, Linkers, Dyes and much more.

We welcome inquiries for custom synthesis. With over 20 years of experience in custom amidite synthesis, both **Hongene** and ***emp** BIOTECH* welcome the opportunity to discuss your requirements.

PHOSPHORAMIDITES

DNA

Catalog No.	Description	Unit Size
HG-PD1-004	DMT-dA(Bz)-CE Phosphoramidite	1 – 20 g
HG-PD2-004	DMT-dG(iBu)-CE Phosphoramidite	1 – 20 g
HG-PD2-006	DMT-dG(dmf)-CE Phosphoramidite	1 – 20 g
HG-PD3-003	DMT-dC(Bz)-CE Phosphoramidite	1 – 20 g
HG-PD3-007	DMT-dC(Ac)-CE Phosphoramidite	1 – 20 g
HG-PD4-002	DMT-dT-CE Phosphoramidite	1 – 20 g
HG-PD5-002	DMT-dU-CE Phosphoramidite	1 – 20 g
HG-PD6-002	DMT-dI-CE Phosphoramidite	1 – 20 g
HG-PD3-008	5-Me-DMT-dC(Bz)-CE Phosphoramidite	1 – 20 g
HG-PD3-009	5-Me-DMT-dC(Ac)-CE Phosphoramidite	1 – 20 g

RNA

Catalog No.	Description	Unit Size
HG-PR1-008	DMT-2'-O-TBDMS-A(Bz)-CE Phosphoramidite	1 – 20 g
HG-PR2-007	DMT-2'-O-TBDMS-G(iBu)-CE Phosphoramidite	1 – 20 g
HG-PR3-008	DMT-2'-O-TBDMS-C(Ac)-CE Phosphoramidite	1 – 20 g
HG-PR5-003	DMT-2'-O-TBDMS-U-CE Phosphoramidite	1 – 20 g

For exact packaging specifications and bulk sizes, please see page 11.

2'-Fluoro

Catalog No.	Description	Unit Size
HG-PD1-001	DMT-2'-F-dA(Bz)-CE Phosphoramidite	1 – 20 g
HG-PD2-001	DMT-2'-F-dG(dmf)-CE Phosphoramidite	1 – 20 g
HG-PD2-002	DMT-2'-F-dG(iBu)-CE Phosphoramidite	1 – 20 g
HG-PD3-001	DMT-2'-F-dC(Ac)-CE Phosphoramidite	1 – 20 g
HG-PD3-002	DMT-2'-F-dC(Bz)-CE Phosphoramidite	1 – 20 g
HG-PD5-001	DMT-2'-F-dU-CE Phosphoramidite	1 – 20 g
HG-PD6-001	DMT-2'-F-dI-CE Phosphoramidite	1 – 20 g

2'-O-Methyl

Catalog No.	Description	Unit Size
HG-PR1-001	DMT-2'-O-Me-A(Bz)-CE Phosphoramidite	1 – 20 g
HG-PR2-001	DMT-2'-O-Me-G(dmf)-CE Phosphoramidite	1 – 20 g
HG-PR2-002	DMT-2'-O-Me-G(iBu)-CE Phosphoramidite	1 – 20 g
HG-PR3-001	DMT-2'-O-Me-C(Ac)-CE Phosphoramidite	1 – 20 g
HG-PR3-002	DMT-2'-O-Me-C(Bz)-CE Phosphoramidite	1 – 20 g
HG-PR5-001	DMT-2'-O-Me-U-CE Phosphoramidite	1 – 20 g
HG-PR5-002	5-Me-DMT-2'-O-Me-U-CE Phosphoramidite	1 – 20 g
HG-PR6-001	DMT-2'-O-Me-I-CE Phosphoramidite	1 – 20 g
HG-PR3-003	5-Me-DMT-2'-O-Me-C(Ac)-CE Phosphoramidite	1 – 20 g
HG-PR3-010	5-Me-DMT-2'-O-Me-C(Bz)-CE Phosphoramidite	1 – 20 g
HG-PR3-012	5-Me-DMT-2'-O-Me-C(dmf)-CE Phosphoramidite	1 – 20 g

PHOSPHORAMIDITES

2'-O-Methoxyethyl

Catalog No.	Description	Unit Size
HG-PR1-004	DMT-2'-O-MOE-A(Bz)-CE Phosphoramidite	1 – 20 g
HG-PR2-006	DMT-2'-O-MOE-G(iBu)-CE Phosphoramidite	1 – 20 g
HG-PR3-007	5-Me-DMT-2'-O-MOE-C(Bz)-CE Phosphoramidite	1 – 20 g
HG-PR4-002	5-Me-DMT-2'-O-MOE-U-CE Phosphoramidite	1 – 20 g

Reverse

Catalog No.	Description	Unit Size
HG-PD1-006	DMT-dA(Bz)-5'-CE Reverse Phosphoramidite	1 – 20 g
HG-PD2-005	DMT-dG(dmf)-5'-CE Reverse Phosphoramidite	1 – 20 g
HG-PD3-004	DMT-dC(Bz)-5'-CE Reverse Phosphoramidite	1 – 20 g
HG-PD3-006	DMT-dC(Ac)-5'-CE Reverse Phosphoramidite	1 – 20 g
HG-PD4-003	DMT-dT-5'-CE Reverse Phosphoramidite	1 – 20 g
HG-PD2-007	DMT-dG(iBu)-5'-CE Reverse Phosphoramidite	1 – 20 g
HG-PR1-003	DMT-A(Bz)-5'-CE Reverse Phosphoramidite	1 – 20 g
HG-PR2-004	DMT-G(dmf)-5'-CE Reverse Phosphoramidite	1 – 20 g
HG-PR3-005	DMT-C(Ac)-5'-CE Reverse Phosphoramidite	1 – 20 g

For exact packaging specifications and bulk sizes, please see page 11.

Locked Nucleic Acids

Catalog No.	Description	Unit Size
HG-PR1-002	LNA-A(Bz)-CE Phosphoramidite	1 – 20 g
HG-PR3-009	LNA-5-Me-C(Bz)-CE Phosphoramidite	1 – 20 g
HG-PR2-005	LNA-G(dmf)-CE Phosphoramidite	1 – 20 g
HG-PR4-001	LNA-T-CE Phosphoramidite	1 – 20 g
HG-PR3-004	LNA-5-Me-C(Ac)-CE Phosphoramidite	1 – 20 g
HG-PR3-006	LNA-C(Bz)-CE Phosphoramidite	1 – 20 g
HG-PR3-013	LNA-C(Ac)-CE Phosphoramidite	1 – 20 g
HG-PR2-003	LNA-G(iBu)-CE Phosphoramidite	1 – 20 g
HG-PR5-006	LNA-U-CE Phosphoramidite	1 – 20 g

3’-(Trityl)-Amino

Catalog No.	Description	Unit Size
HG-PD1-003	3’-TrNH-2’,3’-ddA(dmf)-5’-CE Phosphoramidite	1 – 20 g
HG-PD1-007	3’-TrNH-2’,3’-ddA(Bz)-5’-CE Phosphoramidite	1 – 20 g
HG-PD2-003	3’-TrNH-2’,3’-ddG(iBu)-5’-CE Phosphoramidite	1 – 20 g
HG-PD2-010	3’-TrNH-2’,3’-ddG(dmf)-5’-CE Phosphoramidite	1 – 20 g
HG-PD3-005	3’-TrNH-2’,3’-ddC(Bz)-5’-CE Phosphoramidite	1 – 20 g
HG-PD4-001	3’-TrNH-dT-5’-CE Phosphoramidite	1 – 20 g

Linkers

Catalog No.	Description	Unit Size
HG-OP-001	5'-Amino-Modifier C6 Tr Tr-C6-amine-linker Phosphoramidite	1 – 20 g
HG-OP-007	5'-Amino-Modifier C6 TFA TFA-C6-amine-linker Phosphoramidite	1 – 20 g
HG-OP-002	5'-Amino-Modifier C6 MMT MMT-C6-amine-linker Phosphoramidite	1 – 20 g
HG-OP-008	5'-Amino-Modifier C6 DMT DMT-C6-amine-linker Phosphoramidite	1 – 20 g

Spacers

Catalog No.	Description	Unit Size
HG-OP-003	Spacer Phosphoramidite 18	1 – 20 g
HG-OP-005	Spacer Phosphoramidite C3	1 – 20 g
HG-OP-019	Spacer Phosphoramidite	1 – 20 g

For exact packaging specifications and bulk sizes, please see page 11.

Dye & Hapten Phosphoramidites

Catalog No.	Description	Unit Size
HG-ON-022	6-FAM 5'-Fluorescein Phosphoramidite	1 – 20 g
HG-OP-010	TET Dye Amidite 5'-Tetrachloro-Fluorescein Phosphoramidite	1 – 20 g
HG-OP-011	HEX Dye Amidite 5'-Hexachloro-Fluorescein Phosphoramidite	1 – 20 g
HG-ON-023	5'-Biotin Phosphoramidite	1 – 20 g
HG-OP-014	5'-Cholesterol-CE Phosphoramidite	1 – 20 g
HG-OP-013	5'-Cholesterol-TEG-CE Phosphoramidite	1 – 20 g
HG-OP-020	DMT-Cholesteryl-TEG-CE Phosphoramidite	1 – 20 g

Other

Catalog No.	Description	Unit Size
NC-0201	2-Cyanoethyl-bis-[(N,N-diisopropyl)-amino]-phosphine	1 – 20 g
NC-0202	2-Cyanoethyl-diisopropyl-chlorophosphoramidite	1 – 20 g

For exact packaging specifications and bulk sizes, please see page 11.

Packaging Specifications

Phosphoramidites from ***emp*** *BIOTECH* are available in the pack sizes listed in the table below. To complete the full catalog number, simply add the extension number chosen from the table.

Cat. No. Extension	Unit Size	Bottle Description
-E001.0-M030	1 g in 30 mL bottle	30 mL/1 oz brown glass bottle with 28/400 thread screw cap closure for MerMade synthesizers
-E001.0-M050	1 g in 50 mL bottle	50 mL brown glass bottle with septum closure for ABI & ÄKTA synthesizers
-E002.0-M050	2 g in 50 mL bottle	50 mL brown glass bottle with septum closure for ABI & ÄKTA synthesizers
-E005.0-M100	5 g in 100 mL bottle	100 mL brown glass bottle with septum closure for ÄKTA synthesizers
-E005.0-M240	5 g in 240 mL bottle	240 mL/8 oz brown glass bottle with 28/400 thread screw cap closure for MerMade & Dr. Oligo synthesizers
-E010.0-M100	10 g in 100 mL bottle	100 mL brown glass bottle with septum closure for ÄKTA synthesizers
-E010.0-M240	10 g in 240 mL bottle	240 mL/8 oz brown glass bottle with 28/400 thread screw cap closure for MerMade & Dr. Oligo synthesizers
-E020.0-M480	20 g in 480 mL bottle	480 mL/16 oz brown glass bottle with 28/400 thread screw cap closure for MerMade & Dr. Oligo synthesizers
-E100.0-M250	100 g in 250 mL bottle	250 mL HDPE bottle with screw closure and seal
-E250.0-M500	250 g in 500 mL bottle	500 mL HDPE bottle with screw closure and seal
-E500.0-N001	500 g in 1 L bottle	1 L HDPE bottle with screw closure and seal
-F001.0-N002	1000 g in 2 L bottle	2 L HDPE bottle with screw closure and seal
-F005.0-N010	5 kg in Screw-top pail	10 L HDPE Screw-top pail, moisture-resistant, air tight seal, UN Certified for Solids Groups II and III, FDA grade raw materials
-F010.0-N020	10 kg in Screw-top pail	20 L HDPE Screw-top pail, moisture-resistant, air tight seal, UN Certified for Solids Groups II and III, FDA grade raw materials

emp BIOTECH

High Quality Reagents

emp *BIOTECH* has been manufacturing high quality reagents for oligonucleotide synthesis since 2002. Starting with BMT activator, we have slowly expanded our portfolio to include deblocking, oxidizer, capping, solvent mixtures and other specialty reagents. In addition, ***emp*** *BIOTECH* provides a full range of EZDry moisture traps, post-synthetic labeling, columns and resins for oligo purification.

QUALITY

ISO 9001:2015 certified and working under compliance with the highest standards in the industry, ***emp*** *BIOTECH* offers fully documented reagents ranging in volume from 100 mL to 1500 liters.

emp *BIOTECH* **guarantees:**

- Accreditation to a recognized ISO 9001:2015 standard and certified by TÜV Rheinland.
- A quality system that emphasizes process control, traceability and product performance.
- A quality system that is open and auditable and continually updated in response to customer feedback

SERVICE

We work individually with each of our clients to assess and meet their individual quality requirements. We deliver on schedule and in the size and quantity agree upon. Quality assurance, transparent operating procedures, and change control are all part of the way we work. We aim to be a supportive partner for our clients in every way possible.

MADE IN BERLIN

emp *BIOTECH* has two manufacturing facilities, one in Berlin-Tempelhof and the other in Berlin-Adlershof, a brand new state-of-the-art mixing and filling plant.

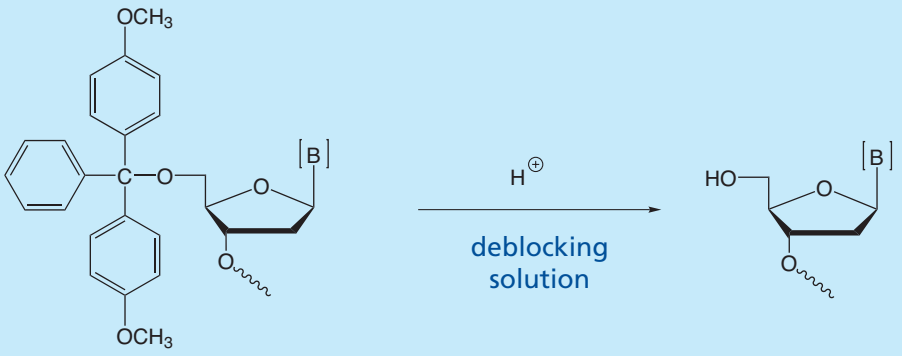
Our facilities include:

- Industrial filling stations
- Small scale production up to 200 L drums (Berlin-Tempelhof)
- Larger scale production up to 1500 L drums (Berlin-Adlershof)

emp BIOTECH

Deblocking / Detritylation

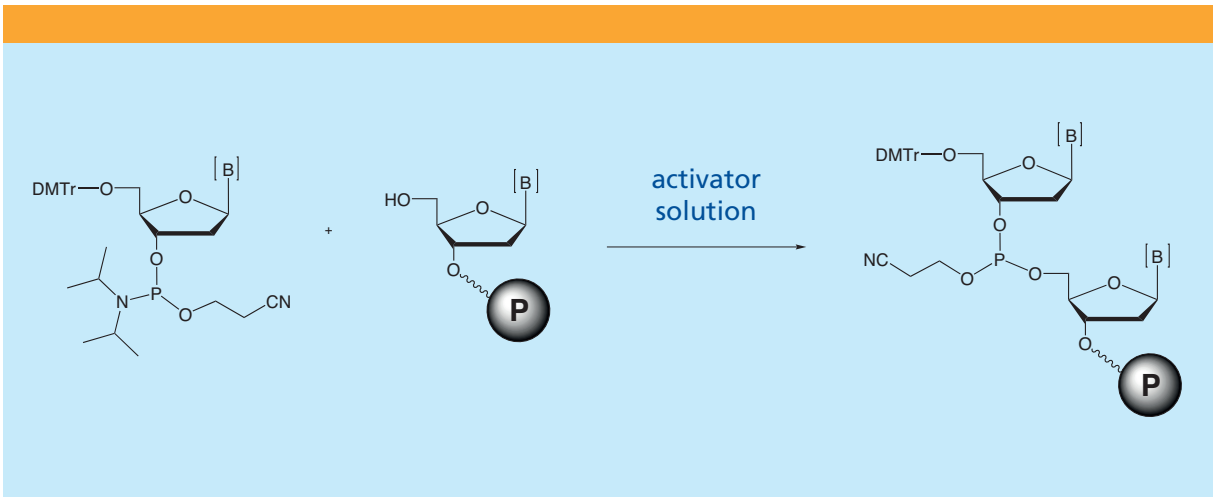
Deblocking solutions, used for the cleavage of the 5'-DMTr group at the last building block of nucleotide chain, can consist either of dichloroacetic or trichloroacetic acid in dichloromethane or toluene. Our Hyacinth Deblocking solution (3 % dichloroacetic acid in toluene at < 30 ppm water) is applicable for the syntheses of high quality, large scale oligonucleotides.



Catalog No.	Description	Unit Size
NC-0401	3 % Dichloroacetic Acid in Methylene Chloride	100 mL to 400 L
NC-0402	Hyacinth Deblocking Reagent 3 % Dichloroacetic Acid in Toluene (water content < 30 ppm)	100 mL to 400 L
NC-0403	2.5 % Dichloroacetic Acid in Methylene Chloride	100 mL to 400 L
NC-0404	3 % Trichloroacetic Acid in Methylene Chloride	100 mL to 400 L
NC-0406	5 % Dichloroacetic Acid in Toluene (for ÄKTA oligopilot™)	100 mL to 400 L
NC-0409	10 % Dichloroacetic Acid in Toluene	100 mL to 400 L
NC-0410	6 % Dichloroacetic Acid in Methylene Chloride	100 mL to 400 L

Activators

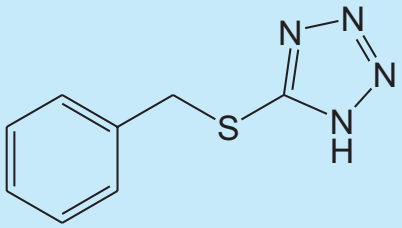
***emp** BIOTECH* manufactures three different activators for use on various DNA and RNA synthesizers. They are available either in dry solid form for dissolution into anhydrous acetonitrile or as a prepared solution of various molarities.



Hyacinth BMT

Hyacinth BMT activator (also known as 5-Benzylmercapto-1H-tetrazole or BTT) demonstrates important advantages in the syntheses of oligonucleotides:

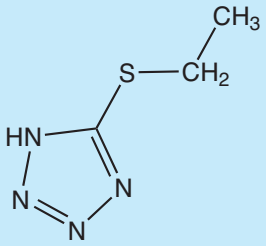
- Coupling efficiencies of 99 % with impeccable quality
- Lower percentage of n-1 sequences
- Dramatic reduction of coupling times to under 3 minutes in RNA syntheses
- Efficient RNA synthesis using 50 % or less TBDMS, TOM® or ACE® monomer
- Excellent batch to batch consistency for reproducible and stable oligo production



Catalog No.	Description	Unit Size
NC-0101	Hyacinth BMT Crystals (5-Benzylmercaptotetrazole, BTT)	1.5 g to 50 kg
NC-0102	0.25 M Hyacinth BMT Solution (BMT in anhydrous Acetonitrile)	100 mL to 400 L
NC-0103	0.3 M Hyacinth BMT Solution (BMT in anhydrous Acetonitrile)	100 mL to 400 L
NC-0104	0.2 M Hyacinth BMT Solution (BMT in anhydrous Acetonitrile)	100 mL to 400 L

ETT

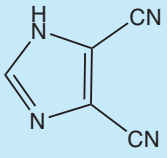
5-Ethylthiotetrazole (ETT) is an efficient activator for use in chemical synthesis of either DNA or RNA. ETT has excellent performance with respect to coupling times, coupling efficiency, consumption of phosphoramidites and reduction of n-1 impurities. ETT can be used for RNA synthesis with TBDMS, O-Methyl, TOM® or ACE® amidites.



Catalog No.	Description	Unit Size
NC-0107	ETT Crystals (5-Ethylmercaptotetrazole)	1.5 g to 50 kg
NC-0108	0.25 M Ethylmercaptotetrazole Solution (ETT in anhydrous Acetonitrile)	100 mL to 400 L
NC-0109	0.5 M Ethylmercaptotetrazole Solution (ETT in anhydrous Acetonitrile)	100 mL to 400 L
NC-0110	0.6 M Ethylmercaptotetrazole Solution (ETT in anhydrous Acetonitrile)	100 mL to 400 L

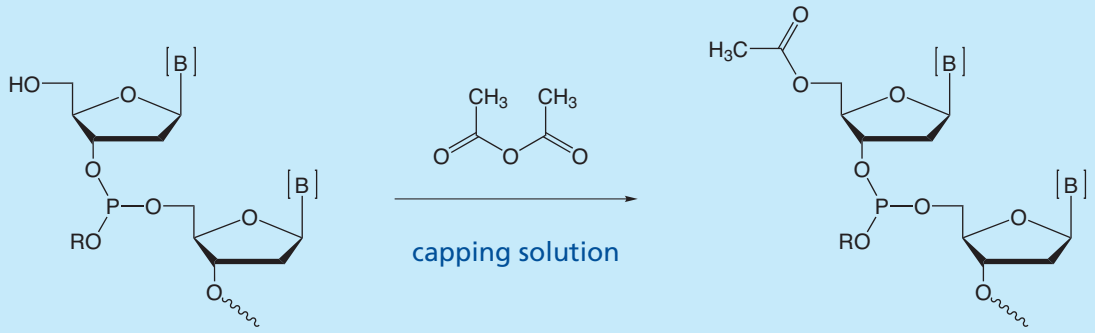
DCI

4,5-Dicyanoimidazole (DCI) is an efficient activator for use in chemical synthesis of DNA.



Catalog No.	Description	Unit Size
NC-0112	DCI Crystals (4,5-Dicyanoimidazole)	1.5 g to 50 kg
NC-0105	0.25 M DCI Solution (4,5-Dicyanoimidazole in anhydrous Acetonitrile)	100 mL to 400 L
NC-0113	0.5 M DCI Solution (4,5-Dicyanoimidazole in anhydrous Acetonitrile)	100 mL to 400 L

Capping Reagents



For each synthesis cycle, up to 1 to 2 % of free 5'-hydroxy groups remain after the phosphoramidite coupling step has been completed. By running a subsequent „Capping" step using an anhydride, these free hydroxyl groups are converted to acetates and are hindered from further chain elongation and formation of long oligonucleotides with incorrect sequences. For optimal acetylation, a solution of acetic anhydride in Tetrahydrofuran or acetonitrile (Capping A) will be mixed *in situ* during reaction with a catalytic acting solution of N-methylimidazole (Capping B). Additives such as pyridine and lutidine function as mild bases to enhance the efficiency of the capping reaction.

Capping A Configurations

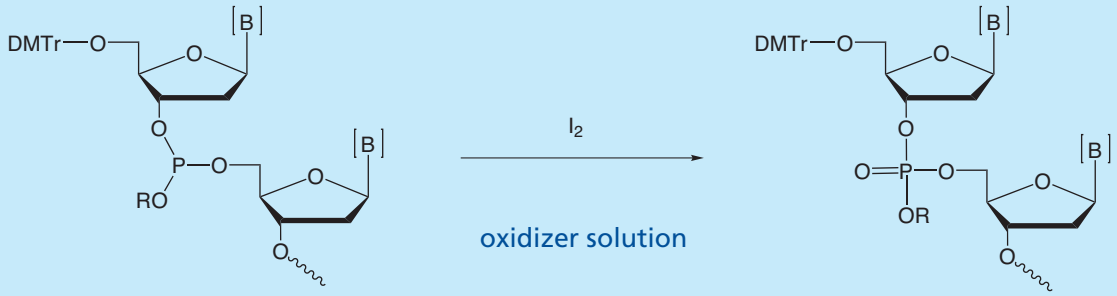
Catalog No.	Description	Unit Size
NC-0701	Capping A (Tetrahydrofuran / 2,6-Lutidine / Acetic Anhydride, V / V / V = 80 : 10 : 10)	100 mL to 400 L
NC-0702	Capping A, 10 % Acetic Anhydride in THF (Tetra-hydrofuran / Acetic Anhydride, V / V = 90 : 10)	100 mL to 400 L
NC-0703	Capping A (Acetonitrile / 2,6-Lutidine / Acetic Anhydride, V / V / V = 80 : 10 : 10)	100 mL to 400 L
NC-0704	Capping A, 10 % Acetic Anhydride in ACN (Acetonitrile / Acetic Anhydride, V / V = 90 : 10)	100 mL to 400 L
NC-0705	Capping A, 20 % NMI in ACN, for ÄKTA oligopilot™ (Acetonitrile / N-methylimidazole, V / V = 80 : 20)	100 mL to 400 L
NC-0706	Capping A (Tetrahydrofuran / Pyridine / Acetic Anhydride, V / V / V = 80 : 10 : 10)	100 mL to 400 L
NC-0707	Capping A, Ultramild (Tetrahydrofuran / Pyridine / Phenoxyacetic Anhydride, (V / V / w = 85 : 10 : 5)	100 mL to 400 L
NC-0708	Capping A, 25 % Acetic Anhydride in ACN (Acetonitrile / Acetic Anhydride, V / V = 75 : 25)	100 mL to 400 L
NC-0709	Capping A, 1:1 MeIm / ACN (N-methylimidazole / Acetonitrile, V / V = 50 : 50)	100 mL to 400 L
NC-0710	Capping A, 5 % Acetic Anhydride in ACN (Acetonitrile / Acetic Anhydride, V / V = 95 : 5)	100 mL to 400 L
NC-0711	Capping A, 20 % Acetic Anhydride in ACN (Acetonitrile / Acetic Anhydride, V / V = 80 : 20)	100 mL to 400 L

Capping B Configurations

Catalog No.	Description	Unit Size
NC-0801	Capping B, 16 % NMI in THF (Tetrahydrofuran / N-methylimidazole, V / V = 84 : 16)	100 mL to 400 L
NC-0802	Capping B, 10 % NMI in THF (Tetrahydrofuran / N-methylimidazole, V / V = 90 : 10)	100 mL to 400 L
NC-0803	Capping B (Tetrahydrofuran / Pyridine / N-methylimidazole, V / V / V = 80 : 10 : 10)	100 mL to 400 L
NC-0804	Capping B (Acetonitrile / Pyridine / N-methylimidazole, V / V / V = 80 : 10 : 10)	100 mL to 400 L
NC-0805	Capping B, 6.5 % DMAP in THF (Tetrahydrofuran / 4-Dimethylaminopyridine, V / w = 93.5 : 6.5)	100 mL to 400 L
NC-0806	Capping B1, 40 % Acetic Anhydride in ACN, for ÄKTA oligopilot™ (Acetonitrile / Acetic Andydride, V / V = 60 : 40)	100 mL to 400 L
NC-0807	Capping B2, 60 % Lutidine in ACN, for ÄKTA oligopilot™ (2,6-Lutidine / Acetonitrile, V / V = 60 : 40)	100 mL to 400 L
NC-0808	Capping B (Acetonitrile / 2,6-Lutidine / N-methylimidazole, V / V / V = 50 : 30 : 20)	100 mL to 400 L
NC-0809	Capping B (Acetonitrile / 2,6-Lutidine / Acetic Anhydride, V / V / V = 50 : 30 : 20)	100 mL to 400 L
NC-0810	Capping B (Acetonitrile / Pyridine / N-methylimidazole, V / V / V = 50 : 30 : 20)	100 mL to 400 L

Oxidizer

Oxidizer solutions promote the oxidation of trivalent phosphotriester into pentavalent phosphate triester using iodine as a mild oxidizing agent. They are available in standard 0.02 M, 0.05 M and 0.1 M iodine concentrations with different mixtures of Tetrahydrofuran, pyridine and water. Custom mixtures are also available. The Hyacinth Oxidizer solution [0.05 M iodine in pyridine / water (V / V = 90 / 10)] is applicable for the syntheses of high quality, large-scale oligonucleotides.



Catalog No.	Description	Unit Size
NC-0501	0.1 M Iodine in Tetrahydrofuran / Pyridine / Water (V / V / V = 78 : 20 : 2)	100 mL to 400 L
NC-0502	Hyacinth Oxidizer 0.05 M Iodine in Pyridine / Water (V / V = 90 : 10)	100 mL to 400 L
NC-0503	0.02 M Iodine in Tetrahydrofuran / Pyridine / Water (V / V / V = 66 : 22 : 12)	100 mL to 400 L
NC-0504	0.02 M Iodine in Tetrahydrofuran / Pyridine / Water (V / V / V = 90.6 : 0.4 : 9)	100 mL to 400 L
NC-0505	0.01 M Iodine in Acetonitrile / Pyridine / Water (V / V / V = 64 : 6 : 30)	100 mL to 400 L
NC-0506	0.02 M Iodine in Tetrahydrofuran / Pyridine / Water (V / V / V = 89.6 : 0.4 : 10)	100 mL to 400 L
NC-0507	0.02 M Iodine in Tetrahydrofuran / Pyridine / Water (V / V / V = 70 : 20 : 10)	100 mL to 400 L

Cleavage & Deprotection

Cleavage of the oligonucleotide from its solid support and subsequent removal of all protecting groups from the nucleobases and phosphates close the cycle of automated oligonucleotide synthesis and bring it to completion. For this purpose, three different Cleavage solutions from ***emp*** *BIOTECH* are available. The correct choice will depend on your requirements for standard, fast or mild cleavage conditions.

Standard: Usage of one volume of conc. ammonium hydroxide (≥ 28 %) under sealed conditions appropriate for removal of the protecting groups an the nucleobases

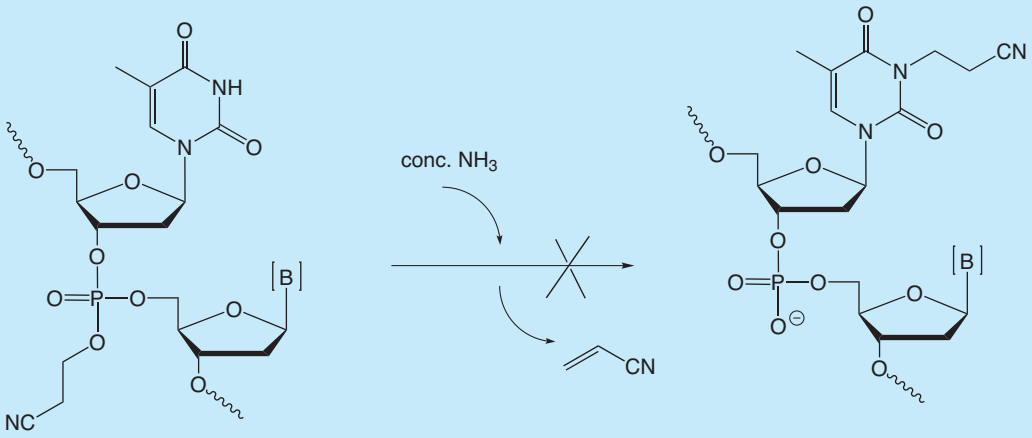
Fast: Usage of one volume of AMA under sealed conditions at 65 °C for 10 min

Mild: Version A – Usage of one volume of conc. ammonium hydroxide (≥ 28 %) under sealed conditions for 8 h at room temperature

Version B – Cleavage from the support with 0.05 M potassium carbonate in methanol for 30 min at room temperature; following removal of the protecting groups under sealed conditions over night at room temperature

Catalog No.	Description	Unit Size
NC-0901	Ammonium Hydroxide, concentrated (≥ 28 %)	100 mL to 400 L
NC-0902	AMA (conc. Ammonia / 40 % Aqueous Methylamine, V / V = 50 : 50)	100 mL to 400 L
NC-0903	0.05 M Potassium Carbonate in dry Methanol	100 mL to 400 L
NC-0904	Deprotection, Ultramild (Ammonium Hydroxide / Ethanol, V / V = 75 : 25)	100 mL to 400 L
NC-0905	40 % Aqueous Methylamine	100 mL to 400 L

CE-ß-Elimination



Alkylation of the N3-position of thymidine by acrylnitrile, which is liberated during ß-elimination of the cyanoethyl group from the phosphates, is a well-known side reaction during simultaneous cleavage of the protecting groups and the oligonucleotide from the support.

This side reaction can be avoided by use of diethylamine or t-butylamine in acetonitrile for the ß-elimination. The oligonucleotide is subsequently cleaved from the support using any standard cleavage conditions.

Catalog No.	Description	Unit Size
NC-0302	20 % Diethylamine in Acetonitrile (water content < 20 ppm)	100 mL to 400 L
NC-0303	20 % t-Butylamine in Acetonitrile (water content < 20 ppm)	100 mL to 400 L

Sulphurizing Reagents

The phosphite triester formed in the coupling step can be converted to the corresponding phosphorothioate triester by treatment with 0.2 M solution of phenylacetyl disulfide (PADS) in acetonitrile and 3-picoline (V / V = 1 : 1). Typically, a 1.5-column volume of PADS solution is used, and sulphurization is complete within 3 minutes, at which time excess reagent is recovered from the reaction vessel by washing with acetonitrile.

Catalog No.	Description	Unit Size
NC-0304-E005.0-001	Phenylacetyl Disulfide (PADS), solid	5 g
NC-0304-E025.0-001	Phenylacetyl Disulfide (PADS), solid	25 g

Solvents & Solvent Mixtures

Catalog No.	Description	Unit Size
NC-0601	Methylene Chloride (Water content < 12 ppm)	100 mL to 400 L
NC-0602	Acetonitrile (Water content < 20 ppm)	100 mL to 400 L
NC-0603	Ethyl Acetate (Water content < 20 ppm)	100 mL to 400 L
NC-0604	Pyridine (Water content < 30 ppm)	100 mL to 400 L
NC-0605	Toluene (Water content < 20 ppm)	100 mL to 400 L
NC-0606	10 % Tetrahydrofuran in Acetonitrile (Water content < 20 ppm)	100 mL to 400 L
NC-0609	Acetonitrile (Water content < 10 ppm)	100 mL to 400 L
NC-0610	Ethanol, unvergällt (≥ 98.8 %)	100 mL to 400 L
NC-0611	Ethanol, unvergällt (Ph Eur)	100 mL to 400 L
NC-0612-BULK	Solvent Mix Pyridine in ACN 6:4	
NC-0612-M450.0-001	Solvent Mix Pyridine in ACN 6:4	1 x 450 mL
NC-0612-N002.5-001	Solvent Mix Pyridine in ACN 6:4	1 x 2.5 L
NC-0612-N004.0-001	Solvent Mix Pyridine in ACN 6:4	1 x 4.0 L

Packaging Specifications

Glass bottles

- 100 mL amber glass bottle with 20 mm crimp/septum
- 200 mL amber glass bottle with 24-405 thread
- 200 mL amber glass bottle with 28-405 thread
- 450 mL amber glass bottle with 28-405 thread
- 0.5 L amber glass bottle with GL45 thread
- 1 L amber glass bottle with GL45 thread
- 2.5 L amber glass bottle with GL45 thread
- 4 L amber glass bottle with GL45 thread
- 4 L amber glass bottle with 38-430 thread

Stainless steel drums

Drum size (max. filling volume):

- 22.4 Liters (20 Liters)
- 33 Liters (30 Liters)
- 53 Liters (50 Liters)
- 110 Liters (100 Liters)
- 225 Liters (200 Liters)
- 430 Liters (400 Liters)

1.4404 (AISI 316L) for corrosive and non-corrosive reagents with UN 1A1W/X2.0/900 certification

Standard connection: G2 Tri-Sure Closure with PTFE seal.
Operating pressure: up to 2.0 bar

Catalog No.	Description
NC-1101	Drum Dispensing Head Unit (DDHU) with 2 PTFE O-rings
NC-1102	Extraction Tube for 33L-drums, fits with DDHU, 1.4404 steel, inner diameter: 2", outer diameter: RD52 x 1/6, with cap and PTFE seals
NC-1103	Extraction Tube for 53L-drums, fits with DDHU, 1.4404 steel, inner diameter: 2", outer diameter: RD52 x 1/6, with cap and PTFE seals
NC-1104	Extraction Tube for 225L-drums, fits with DDHU, 1.4404 steel, inner diameter: 2", outer diameter: RD52 x 1/6, with cap and PTFE seals
NC-1105	Inlet/Outlet Drum Dispensing System for 33L-drums; 1.4404 steel, with nitrogen connector type M and liquid connector type K, with PTFE seals
NC-1106	Inlet/Outlet Drum Dispensing System for 53L-drums; 1.4404 steel, with nitrogen connector type M and liquid connector type K, with PTFE seals
NC-1107	Inlet/Outlet Drum Dispensing System for 225L-drums; 1.4404 steel, with nitrogen connector type M and liquid connector type K, with PTFE seals

emp BIOTECH

Moisture Traps & Molecular Sieves

- For maintaining water-free conditions in anhydrous solvents and reagents
- For removal of water from solvents

EZ Dry Moisture Traps are used for efficient removal of water from solvents and reagents. The traps will maintain anhydrous conditions of 30 ppm or less while resisting increases in water content due to routine or repeated opening of reagent containers.

EZ Dry Moisture Traps ensure your phosphoramidite and activator solutions remain dry and water-free from the first day to the last day of use. Each EZ DRY batch is tested according to strict quality assurance specifications. This enables optimal coupling conditions and high quality nucleic acids.

EZ Dry Moisture Traps are vacuum sealed, fully activated, and ready-to-use. The pouch material is inert to acetonitrile, pyridine and toluene. Eight standard sizes are available.

Molecular Sieves

Catalog No.	Description	Unit Size
HR-0101-E500.0-001	Trockite Molecular Sieves, spheres, 1.6 - 3.2 mm, 3Å pore size, dust reduced	500 g
HR-0101-F001.0-001	Trockite Molecular Sieves, spheres, 1.6 - 3.2 mm, 3Å pore size, dust reduced	1 kg
HR-0101-F010.0-001	Trockite Molecular Sieves, spheres, 1.6 - 3.2 mm, 3Å pore size, dust reduced	10 kg
HR-0102-E500.0-001	Trockite Molecular Sieves, spheres, 1.6 - 3.2 mm, 3Å pore size	500 g
HR-0102-F001.0-001	Trockite Molecular Sieves, spheres, 1.6 - 3.2 mm, 3Å pore size	1 kg
HR-0102-F010.0-001	Trockite Molecular Sieves, spheres, 1.6 - 3.2 mm, 3Å pore size	10 kg

LABELING AND PURIFICATION

EZ Dry Moisture Traps

activated molecular sieve sachets for maintaining low water content

Catalog No.	Description	Unit Size
HR-0103-Z001.0-001	**EZ Dry Mini Moisture Trap, activated molecular sieve sachets** Contains 0.5 g. For volumes up to 100 mL. Fits bottlenecks with diameter > 12 mm.	1 trap
HR-0103-Z005.0-001		5 traps
HR-0103-Z010.0-001		10 traps
HR-0111-Z001.0-001	**EZ Dry 250ML Moisture Trap, activated molecular sieve sachets** Contains 1 g. For volumes up to 250 mL. Fits bottlenecks with diameter > 15 mm	1 trap
HR-0111-Z005.0-001		5 traps
HR-0111-Z010.0-001		10 traps
HR-0109-Z001.0-001	**EZ Dry 500ML Moisture Trap, activated molecular sieve sachets** Contains 2 g. For volumes up to 500 mL. Fits bottlenecks with diameter > 17 mm	1 trap
HR-0109-Z005.0-001		5 traps
HR-0109-Z010.0-001		10 traps
HR-0104-Z001.0-001	**EZ Dry 1L Moisture Trap, activated molecular sieve sachets** Contains 5 g. For volumes up to 1000 mL. Fits bottlenecks with diameter > 17 mm.	1 trap
HR-0104-Z005.0-001		5 traps
HR-0104-Z010.0-001		10 traps
HR-0105-Z001.0-001	**EZ Dry 2,5L Moisture Trap, activated molecular sieve sachets** Contains 10 g. For volumes up to 2.5 L. Fits bottlenecks with diameter > 28 mm.	1 trap
HR-0105-Z005.0-001		5 traps
HR-0105-Z010.0-001		10 traps
HR-0106-Z001.0-001	**EZ Dry 4L Moisture Trap, activated molecular sieve sachets** Contains 25 g. For volumes up to 4 L. Fits bottlenecks with diameter > 24 mm.	1 trap
HR-0106-Z005.0-001		5 traps
HR-0106-Z010.0-001		10 traps
HR-0110-Z001.0-001	**EZ Dry 10L Moisture Trap, activated molecular sieve sachets** Contains 50 g. For volumes up to 10 L. Fits bottlenecks with diameter > 56 mm.	1 trap
HR-0110-Z005.0-001		5 traps
HR-0110-Z010.0-001		10 traps
HR-0107-Z001.0-001	**EZ Dry 20L Moisture Trap, activated molecular sieve sachets** Contains 100 g. For volumes up to 20 L. Fits bottlenecks with diameter > 56 mm.	1 trap
HR-0107-Z005.0-001		5 traps
HR-0107-Z010.0-001		10 traps

LABELING AND PURIFICATION

EZ Dry Prime Moisture Traps

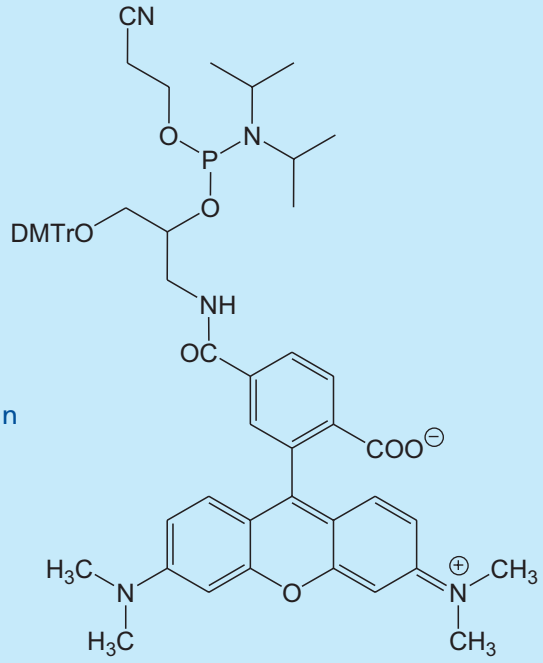
activated Zeolite sachets for rapid reduction of water content in solvents

Catalog No.	Description	Unit Size
HR-0113-Z001.0-001	**EZ Dry Prime Mini Moisture Trap, activated Zeolite sachets** Contains 0.5 g. For drying volumes of up to 100 mL. Fits bottlenecks with diameter > 12 mm.	1 trap
HR-0113-Z005.0-001		5 traps
HR-0113-Z010.0-001		10 traps
HR-0114-Z001.0-001	**EZ Dry Prime 250ML Moisture Trap, activated Zeolite sachets** Contains 1 g. For drying volumes of up to 250 mL. Fits bottlenecks with diameter > 15 mm.	1 trap
HR-0114-Z005.0-001		5 traps
HR-0114-Z010.0-001		10 traps
HR-0115-Z001.0-001	**EZ Dry Prime 500ML Moisture Trap, activated Zeolite sachets** Contains 2 g. For drying volumes of up to 500 mL. Fits bottlenecks with diameter > 17 mm.	1 trap
HR-0115-Z005.0-001		5 traps
HR-0115-Z010.0-001		10 traps
HR-0116-Z001.0-001	**EZ Dry Prime 1L Moisture Trap, activated Zeolite sachets** Contains 5 g. For drying volumes of up to 1 L. Fits bottlenecks with diameter > 17 mm.	1 trap
HR-0116-Z005.0-001		5 traps
HR-0116-Z010.0-001		10 traps
HR-0117-Z001.0-001	**EZ Dry Prime 2,5L Moisture Trap, activated Zeolite sachets** Contains 10 g. For drying volumes of up to 2.5 L. Fits bottlenecks with diameter > 28 mm.	1 trap
HR-0117-Z005.0-001		5 traps
HR-0117-Z010.0-001		10 traps
HR-0118-Z001.0-001	**EZ Dry Prime 4L Moisture Trap, activated Zeolite sachets** Contains 25 g. For drying volumes of up to 4 L. Fits bottlenecks with diameter > 24 mm.	1 trap
HR-0118-Z005.0-001		5 traps
HR-0118-Z010.0-001		10 traps
HR-0119-Z001.0-001	**EZ Dry Prime 10L Moisture Trap, activated Zeolite sachets** Contains 50 g. For drying volumes of up to 10 L. Fits bottlenecks with diameter > 56 mm.	1 trap
HR-0119-Z005.0-001		5 traps
HR-0119-Z010.0-001		10 traps
HR-0120-Z001.0-001	**EZ Dry Prime 20L Moisture Trap, activated Zeolite sachets** Contains 100 g. For drying volumes of up to 20 L. Fits bottlenecks with diameter > 56 mm.	1 trap
HR-0120-Z005.0-001		5 traps
HR-0120-Z010.0-001		10 traps

emp BIOTECH

Oligo Labeling

TAMRA-DMTr-phosphoramidite is used for convenient covalent labeling of nucleic acids at the 5‘- or 3‘-end as well as at any desired position during automated chemical synthesis of oligonucleotides. Due to the presence of the DMTr group, TAMRA-DMTr-phosphoramidite is readily soluble in acetonitrile and can be used in standard oligonucleotide synthesis coupling protocols. TAMRA has a high extinction coefficient and an excellent fluorescent quantum yield. For this reason, dual-labeled TAMRA / Fluorescein oligonucleotides are commonly used as probes with Real-Time-PCR devices.



When using TAMRA-DMTr-phosphoramidite, deprotection conditions are MILDER than standard conditions and should be selected for use from the following list:

PAC-protection:
- 4 hours conc. ammonia at room temperature
- 90 min AMA (conc. ammonia : methylamine = 1 : 1) at room temperature
- 3 hours t-butylamine : methanol : water = 1 : 1 : 2 at 90 °C
- 4 hours 0.05 M potassium carbonate in dry methanol at room temperature

Standard-protection:
- 20 hours t-butylamine : water = 1 : 3 at 65 °C

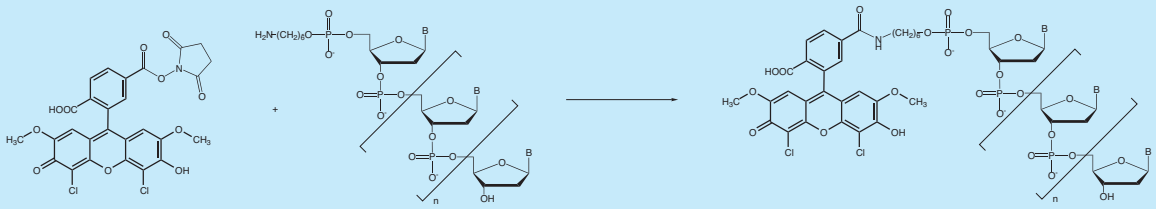
Standard procedures can be used if additional purification is required.

Amidite Fluorophores and Labels

Catalog No.	Description	Unit Size
PF-0102-C100.0-001	5-Carboxytetramethylrhodamine DMTr-CE-phosphoramidite (5-TAMRA-DMTr-phosphoramidite)	100 µmol
PF-0102-D250.0-001	5-Carboxytetramethylrhodamine DMTr-CE-phosphoramidite (5-TAMRA-DMTr-phosphoramidite)	250 mg
PF-0103-C100.0-001	6-Carboxytetramethyl-rhodamine DMTr-CE-phosphoramidite (6-TAMRA-DMTr-phosphoramidite)	100 µmol
PF-0103-D250.0-001	6-Carboxytetramethyl-rhodamine DMTr-CE-phosphoramidite (6-TAMRA-DMTr-phosphoramidite)	250 mg
PF-0104-C100.0-001	6-Carboxyfluorescein-dipivaloyl CE-phosphoramidite (6-FAM-phosphoramidite)	100 µmol
PF-0104-D250.0-001	6-Carboxyfluorescein-dipivaloyl CE-phosphoramidite (6-FAM-phosphoramidite)	250 mg
PF-0104-E001.0-001	6-Carboxyfluorescein-dipivaloyl CE-phosphoramidite (6-FAM-phosphoramidite)	1 g

Catalog No.	Description	Unit Size
PF-0301-C100.0-001	Dabcyl-5'-phosphoramidite	100 µmol
PF-0301-D250.0-001	Dabcyl-5'-phosphoramidite	250 mg
PF-0302-C100.0-001	Dabcyl-3'-phosphoramidite	100 µmol
PF-0302-D250.0-001	Dabcyl-3'-phosphoramidite	250 mg

Fluorophore Activated Esters



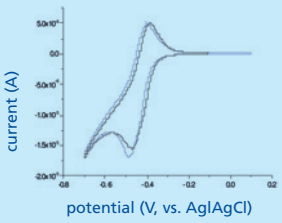
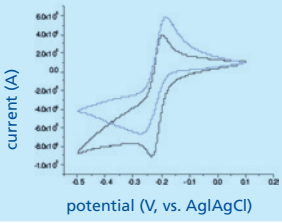
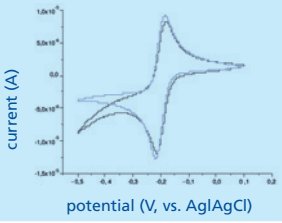
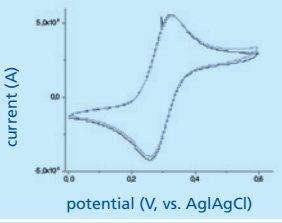
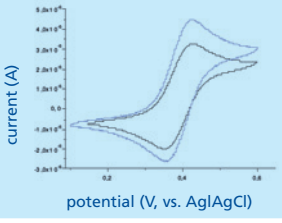
Amino-functionalized oligonucleotides react with succinimidyl ester activated dyes to form conjugates having stable amide bonds.

TECHNICAL NOTE: Before starting the coupling reaction, the oligonucleotide must be lyophilized once with 0.1 M sodium bicarbonate in order to remove residue ammonia ions!

Catalog No.	Description	Unit Size
AF-0401	MANT-NHS ester Exc.: 325 nm Em.: 412 nm	5 mg to 100 g
AF-0105	5-FAM-NHS ester Exc.: 496 nm Em.: 519 nm	5 mg to 1 kg
AF-0106	6-FAM-NHS ester Exc.: 497 nm Em.: 519 nm	5 mg to 1 kg
AF-0107	5-TAMRA-NHS ester Exc.: 550 nm Em.: 575 nm	5 mg to 1 kg
AF-0108	6-TAMRA-NHS ester Exc.: 549 nm Em.: 572 nm	5 mg to 1 kg
AF-0110	6-ROX-NHS ester Exc.: 587 nm Em.: 599 nm	5 mg to 1 kg

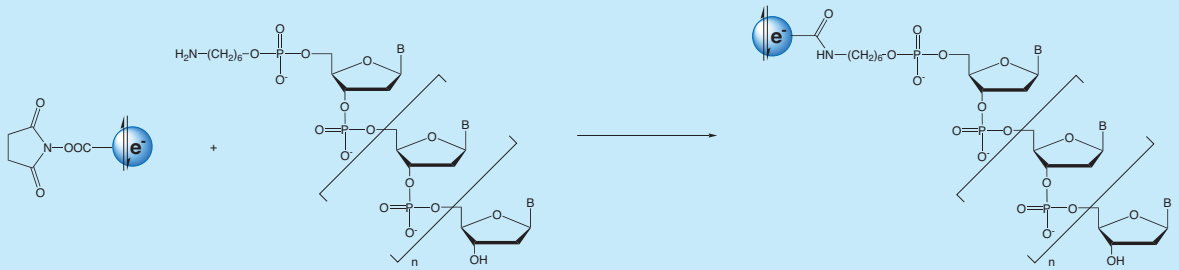
Biosensoric

For electrochemical applications, ***emp** BIOTECH* now offers a wide variety of ElectroActive biosensors for labeling of biomolecules, specifically nucleic acids, to form labeled probes equipped with redox-active reporter groups.

Product Code	Class of Redox Label	Electrode*	Potential Ef (V) vs. Ag/AgCl (1M KCl)	Peak Separation ΔEp (mV) [υ = 0.1 V/s]	Stability of Electrochemistry [20 Cycles]	Cyclic Voltamogram Au Electrode (black) Au-dsDNA-Electrode (blue)
AF-0405	Quinone	Au	-0.425	68	stable	
		Au-dsDNA	-0.428	79	stable	
AF-0201	Phenothiazine	Au	-0.216	31	stable	
		Au-dsDNA	-0.222	81	stable	
AF-0202	Phenothiazine	Au	-0.198	29	stable	
		Au-dsDNA	-0.201	31	stable	
AF-0402	Metal Complex	Au	+0.292	55	stable	
		Au-dsDNA	+0.292	58	stable	
AF-0403	Metal Complex	Au	+0.390	59	stable	
		Au-dsDNA	+0.390	57	stable	

*Au electrode – gold wire; Au-dsDNA electrode – gold wire modified with dsDNA (18 base pairs)

Biosensoric



Amino-functionalized oligonucleotides are reacted with succinimidyl ester activated redox labels to form conjugates having stable amide bonds.

TECHNICAL NOTE: Before starting the coupling reaction, the oligonucleotide must be lyophilized once with 0.1 M sodium bicarbonate in order to remove residue ammonia ions!

Catalog No.	Description	Unit Size
AF-0201-D005.0-001	Dicarboxymethylene Blue NHS ester (DCMB-SE)	5 mg
AF-0202-D005.0-001	Monocarboxymethylene Blue NHS ester (MCMB-SE)	5 mg
AF-0402-D005.0-001	Ferrocene carboxylic acid NHS ester (Ferrocene-SE)	5 mg
AF-0403-D005.0-001	Ferrocene-amidopentyl carboxylic acid NHS ester (Ferrocene-C6-SE)	5 mg
AF-0405-D005.0-001	Anthraquinone-2-amidopentyl carboxylic acid NHS ester (AQI-C6-SE)	5 mg

Additional novel ElectroActive biosensors are currently under development.

emp BIOTECH

Oligo Desalting

CentriPure Gel Filtration Columns are specifically designed for rapid and efficient removal of small molecules (dyes, salts, biotin, haptens, etc.) from larger proteins, nucleic acids, or nanoparticles, which are simultaneously purified and desalted in a single step.

Ultrapure gel and specially treated sinter frits ensure outstanding resolution, low cross-contamination and high selectivity.

CentriPure columns are precision filled with **Zetadex Medium**, which has been optimized for gravity flow chromatography. **CentriPure** columns can be pre-washed with pure water for desalting or pre-equilibrated with a buffer of choice for a customized buffer exchange. The gravity column provides a significantly faster and far more efficient alternative to lengthy dialysis.

CentriPure columns process fixed sample volumes and elute with a 1.5-fold dilution. There are eight column sizes available for the following fixed sample volumes: 0.2 mL, 0.5 mL, 1 mL, 2.5 mL, 5 mL, 10 mL, 50 mL and 100 mL.

CentriPure
Hydrated Gel Filtration Columns

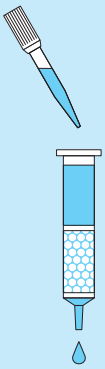
easy 4 step protocol

1.
Column Preparation

Remove the cap from the top and then the white bottom cap of the **CentriPure** Column. Allow excess column fluid to drain (via gravity) into a suitable waste reservoir.

2.
Column Equilibration

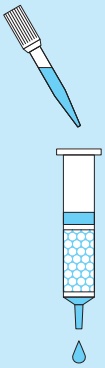
Equilibrate the column by loading it with 5x the bed volume of water or buffer (use the same buffer for equilibration and elution). Allow the equilibration buffer to drain completely.



3.
Sample Application

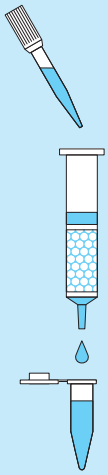
Transfer the sample to the **CentriPure** Column.

Allow the sample to enter the gel bed completely.



4.
Elution

Place a tube for sample collection under the **CentriPure** Column. Transfer the elution buffer to the column and elute the purified sample.



CentriPure N / CentriPure NF

For rapid nucleic acid purification, desalting, and buffer exchange

Cat. No.	Name	Application	Sample Vol.	Pack Size
CP-0109	CentriPure N2	For desalting/buffer exchange of nucleic acids longer than 10 base pairs/nucleotides.	150 – 300 µL	50 Columns
CP-0153	CentriPure NF2	For desalting/buffer exchange of nucleic acids longer than 20 base pairs/nucleotides.	150 – 300 µL	50 Columns
CP-0103	CentriPure N5	For desalting/buffer exchange of nucleic acids longer than 10 base pairs/nucleotides.	0.5 mL	50 Columns
CP-0154	CentriPure NF5	For desalting/buffer exchange of nucleic acids longer than 20 base pairs/nucleotides.	0.5 mL	50 Columns
CP-0104	CentriPure N10	For desalting/buffer exchange of nucleic acids longer than 10 base pairs/nucleotides.	1.0 mL	50 Columns
CP-0124	CentriPure NF10	For desalting/buffer exchange of nucleic acids longer than 20 base pairs/nucleotides.	1.0 mL	50 Columns
CP-0105	CentriPure N25	For desalting/buffer exchange of nucleic acids longer than 10 base pairs/nucleotides.	2.5 mL	25 Columns
CP-0155	CentriPure NF25	For desalting/buffer exchange of nucleic acids longer than 20 base pairs/nucleotides.	2.5 mL	25 Columns
CP-0112	CentriPure N50	For desalting/buffer exchange of nucleic acids longer than 10 base pairs/nucleotides.	5.0 mL	10 Columns
CP-0149	CentriPure NF50	For desalting/buffer exchange of nucleic acids longer than 20 base pairs/nucleotides.	5.0 mL	10 Columns
CP-0118	CentriPure N100	For desalting/buffer exchange of nucleic acids longer than 10 base pairs/nucleotides.	10.0 mL	10 Columns
CP-0146	CentriPure NF100	For desalting/buffer exchange of nucleic acids longer than 20 base pairs/nucleotides.	10.0 mL	10 Columns
CP-0123	CentriPure N500	For desalting/buffer exchange of nucleic acids longer than 10 base pairs/nucleotides.	50 mL	1 Column
CP-0151	CentriPure N1000	For desalting/buffer exchange of nucleic acids longer than 20 base pairs/nucleotides.	100 mL	1 Column

CentriPure N Gel Filtration Columns
for desalting/buffer exchange of Nucleic acids longer than 10 base pairs/nucleotides

CentriPure NF Gel Filtration Columns
for desalting/buffer exchange of Nucleic acids longer than 20 base pairs/nucleotides


Cat. No. TM-0103-500g
Zetadex-25 Medium
Gel Filtration / Size Exclusion Matrix
for purification, desalting
and buffer exchange of biopolymers
LOT: E2105E
Zetadex-25 Medium
Gel Filtration / Size Exclusion Matrix
for purification, desalting & buffer exchange of biopolymers
Charge/Lot: E2105E
Retest by: May 2017
Dry Particle Size: 50 – 150 µm (>80%)
emp
BIOTECH

Gel Filtration – Zetadex Desalting Resin

Zetadex is a beaded composite material developed by ***emp*** *BIOTECH* and comprised of ultrapure cross-linked dextran. It exhibits high selectivity, superb resolution, low non-specific adsorption and robust chemical stability. Buffer and pH effects on resolution are minimal.

Molecules purified with **Zetadex** are separated according to size. Molecules and particles larger than the pores are excluded from entering the beads, remain in the void volume, pass rapidly through the column, and are eluted free from low molecular weight contaminants

The main advantage of **Zetadex** is the ability to rapidly remove small molecules and to simultaneously desalt the sample into pure water. If **Zetadex** is pre-equilibrated with a particular buffer, then the sample undergoes rapid buffer exchange directly into the buffer of choice.

Zetadex Gel Filtration Resin Overview

There are currently two grades of **Zetadex**, **Zetadex-25** and **Zetadex-50**, which have distinct separation characteristics arising from different degrees of cross-linking. The size exclusion or molecular weight cut-off (MWCO) of **Zetadex-25** is 5 kD for proteins and 10 bases for nucleic acids. For **Zetadex-50**, the cut-offs are 25 kD and 20 bases, respectively.

The particle size distribution (PSD) of **Zetadex** is precision controlled by a process developed at ***emp*** *BIOTECH*. The PSD determines the flow rate through the gel bed and it is important to choose the best PSD for the intended application.

Zetadex resins are divided into four categories:

- **Superfine** (20 – 50 µm),
- **Fine** (20 – 80 µm),
- **Medium** (50 – 150 µm) and
- **Coarse** (150 – 250 µm).

In general, Superfine is used for flow under pressure up to 5 bar, Fine is used for centrifugation, Medium for gravity flow and Coarse for process chromatography.

Zetadex is autoclavable at 121 °C, pH 7 for 30 minutes and is stable in all commonly used buffers, including:

0.2 M NaOH;
0.2 M HCl;
1 M acetic acid;
8 M urea;
6 M guanidine HCl;
1 % SDS,
24 % ethanol;
30 % propanol;
and 30 % acetonitrile.

Catalog No.	Description	Unit Size
TM-0101-E100.0-001	Zetadex-25 Superfine	100 g
TM-0101-E500.0-001	Zetadex-25 Superfine	500 g
TM-0101-F001.0-001	Zetadex-25 Superfine	1 kg
TM-0102-E100.0-001	Zetadex-25 Fine	100 g
TM-0102-E500.0-001	Zetadex-25 Fine	500 g
TM-0102-F001.0-001	Zetadex-25 Fine	1 kg
TM-0103-E100.0-001	Zetadex-25 Medium	100 g
TM-0103-E500.0-001	Zetadex-25 Medium	500 g
TM-0103-F001.0-001	Zetadex-25 Medium	1 kg
TM-0104-E100.0-001	Zetadex-50 Superfine	100 g
TM-0104-E500.0-001	Zetadex-50 Superfine	500 g
TM-0104-F001.0-001	Zetadex-50 Superfine	1 kg
TM-0105-E100.0-001	Zetadex-50 Fine	100 g
TM-0105-E500.0-001	Zetadex-50 Fine	500 g
TM-0105-F001.0-001	Zetadex-50 Fine	1 kg
TM-0106-E100.0-001	Zetadex-50 Medium	100 g
TM-0106-E500.0-001	Zetadex-50 Medium	500 g
TM-0106-F001.0-001	Zetadex-50 Medium	1 kg

Terms and Conditions

For conducting business with ***emp** BIOTECH*, please review our general terms and conditions as listed on our website **www.empbiotech.com**.

***emp** BIOTECH* GmbH
Robert-Rössle-Str. 10
13125 Berlin · Germany

Tel. +49 (0)30 94 89 22 01
Fax +49 (0)30 94 89 32 01
info@empbiotech.com

***emp** BIOTECH* is an ISO 9001:2015 certified company · Registration number 011001300789 (TÜV Rheinland)

We will deliver any requested packing size and/or will customize all packaging to suit your specific applications and requirements. If you do not see what you are looking for, please contact us.


emp
Hyacinth Deblocking Reagent
emp
Hyacinth Deblocking Reagent
emp
Hyacinth Deblocking Reagent
emp
Hyacinth Deblocking Reagent

emp BIOTECH

www.empbiotech.com

09. 2019