PureSynth®
Research Chemicals GmbH

PurOligo

Your partner of choice for all your oligonucleotide synthesis reagents

cs@pure-synth.com www.pure-synth.com

Design Your Oligonucleotide

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Pur*Oligo* Reagents – Powering Precision in Every Strand

Oligonucleotides play a vital role in molecular biology, genetic diagnostics, and therapeutic development - demanding uncompromising reagent quality at every stage of synthesis.

At Pure-Synth, we are committed to delivering reagents and solvents engineered for superior performance in both DNA and RNA oligonucleotide synthesis.

Our comprehensive portfolio includes:

- **PurOligo Deblocking Reagents**
- **PurOligo Activators**
- **PurOligo Capping Reagents**
- **PurOligo Oxidation Reagents**
- **PurOligo Cleavage & Deprotection Reagents**
- **PurOligo CE-ß-Eliminators**
- **PurOligo Sulphurizing Reagents**
- **PurOligo Low Moisture Solvents**

The efficiency and final yield of oligonucleotide synthesis are highly sensitive to moisture levels. That's why the Pure-Synth line has been developed with a clear focus: **ultra-low water content and exceptional purity.**

Each product is manufactured to the highest industry standards, undergoing specialised quality control processes to ensure consistency, reliability, and optimal performance in every batch.

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Whether for research laboratories or industrial-scale synthesis, our solutions are designed to meet the most demanding applications in oligonucleotide production - delivering the purity, precision, and scalability our customers expect.

• Oligonucleotide synthesis

Deblocking Reagents
Deblocking (Detritylation)

Activation / Coupling Reagents
Activation / Coupling

Capping Reagents
Capping

Oxidation Reagents
Oxidation

Cleavage & Deprotection Reageants
Cleavage & Deprotection

CE-ß-Eliminating Reageants
CE-ß-Eliminators

Sulphurizing Reageants
Sulphurizing

Low Moisture Solvents
Solvents for Washing

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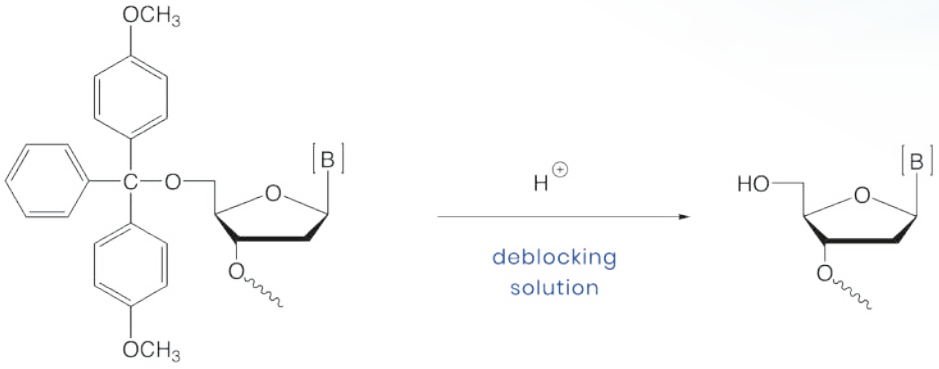
• PurOligo Deblocking Reagents

Our Deblocking Solutions are specifically developed for high-throughput oligonucleotide synthesis workflows. Formulated to efficiently remove the 5'-DMTr (dimethoxytrityl) protecting group without compromising oligo integrity, these solutions ensure high coupling efficiency and synthesis accuracy.

These solutions typically consist of dichloroacetic acid (DCA) or trichloroacetic acid (TCA) dissolved in dichloromethane or toluene.



Product No.	Description	Packing
PSR48532	3% Dichloroacetic Acid in Dichloromethane PurOligo	2.5 L, 4 L
PSR48533	3% Dichloroacetic Acid in Toluene, <30 ppm water PurOligo	2.5 L, 4 L
PSR48534	Detritylation Reagent PurOligo 3% Trichloroacetic Acid in Dichloromethane	2.5 L, 4 L
PSR48535	5% Dichloroacetic Acid in Toluene PurOligo	2.5 L, 4 L
PSR48536	10% Dichloroacetic Acid in Toluene PurOligo	2.5 L, 4 L
PSR50315	6% Dichloroacetic Acid in Dichloromethane PurOligo	4 L

Did you know shorter deblocking times dramatically reduce depurination?

Prolonged acid exposure may cause the loss of purine bases (A, G).

Limit contact time: typically, 30 to 60 sec for TCA, & up to 2 min for DCA.

Using our optimized formulations reduces risk and improves yield consistency.

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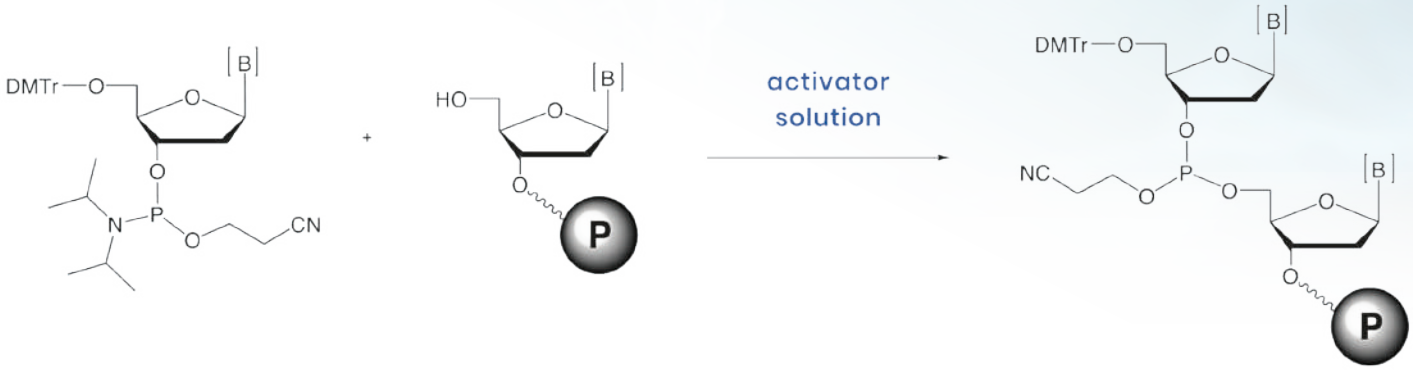
• PurOligo Activators

Efficient coupling is the heart of oligonucleotide synthesis. Our high-purity activators ensure **fast reaction rates, minimal impurities, and maximum yields** — whether you are working at lab scale or GMP production.



Our Avtivators Portfolio

- ETT (5-Ethylthio-1H-tetrazole)
- BTT / BMT (5-Benzylmercapto-1H-tetrazole)
- DCI (4,5-Dicyanoimidazole)

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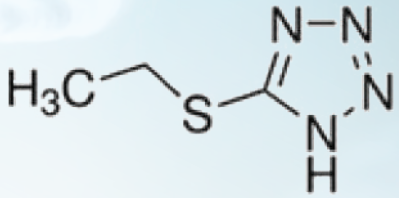
a) ETT (5-Ethylthio-1H-tetrazole)

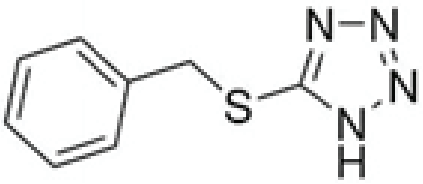
A highly efficient activator trusted in the chemical synthesis of both DNA and RNA. Known for its fast-coupling rates, high efficiency, and reduced n-1 impurities, ETT minimizes phosphoramidite consumption while maximizing yield.



Product No.	Description	Packing
PSR48537	ETT Crystal (5-Ethylthiotetrazole) PurOligo	100G, 1000G
PSR48538	0.25 M 5-Ethylthiotetrazole Solution (ETT in Anhydrous Acetonitrile) PurOligo	450ML, 2.5L
PSR48539	0.5M 5-Ethylthiotetrazole Solution (ETT in Anhydrous Acetonitrile) 20 ppm PurOligo	2.5L
PSR49947	0.5 M 5-Ethylthiotetrazole Solution (ETT in Anhydrous Acetonitrile) 50 ppm PurOligo	1L
PSR50145	0.5 M 5-Ethylthiotetrazole Solution (ETT in Anhydrous Acetonitrile) 60 ppm PurOligo	1L
PSR48540	0.6 M 5-Ethylthiotetrazole Solution (ETT in Anhydrous Acetonitrile) PurOligo	2.5 L, 4L

b) BTT / BMT (5-Benzylmercapto-1H-tetraole)

BTT is a powerful and clean activator that supports demanding oligonucleotide synthesis, including modified sequences. Its enhanced reactivity compared to other activators leads to improved coupling efficiency. Ideal for both research and therapeutic-grade manufacturing.



Product No.	Description	Packing
PSR48541	BMT Crystal, 5-Benzylmercaptotetrazole PurOligo	100 g, 1000 g
PSR48542	0.25 M BMT Solution (BMT in Anhydrous Acetonitrile) PurOligo	450ML, 2.5 L
PSR48543	0.3 M BMT Solution (BMT in Anhydrous Acetonitrile) PurOligo	450ML, 1 L, 2.5 L
PSR49927	0.3 M 5-Benzylmercaptotetrazole (BMT) in Acetonitrile with 0.5% N-Methylimidazole (NMI) PurOligo [Activator]	1L
PSR50316	1.0 M 4,5-Dicyanoimidazole Activator (DCI) with 0.1 M N-Methylimidazole (NMI) in Acetonitrile PurOligo	1L, 2.5L

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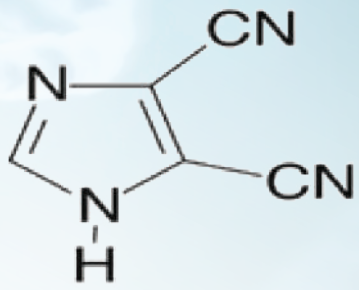
c) DCI (4,5-Dicyanoimidazole)

DCI is a reliable activator widely used in automated DNA and RNA synthesis. It offers excellent solubility and stability, supporting reproducible performance across multiple synthesis cycles. By ensuring consistent coupling and reduced side reactions, DCI helps achieve high yields with robust process control.



Product No.	Description	Packing
PSR48544	0.25 M DCI Solution (4,5-Dicyanoimidazole in Anhydrous Acetonitrile) PurOligo	450ML, 2.5 L, 4L
PSR48545	0.5 M DCI Solution (4,5-Dicyanoimidazole in Anhydrous Acetonitrile) PurOligo	2.5 L

Did you know?

A 1% drop in coupling efficiency per cycle can reduce final oligo yield by over 30%!

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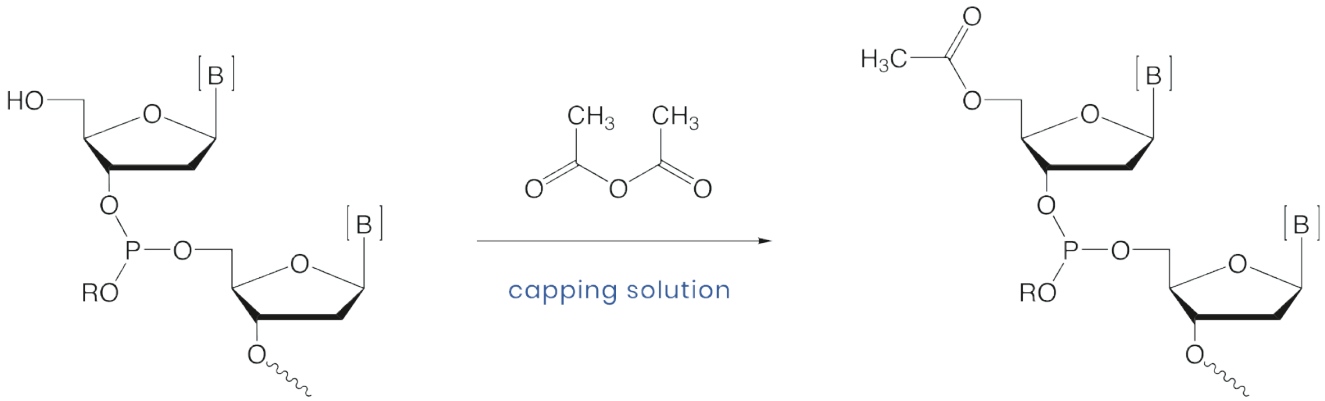
• PurOligo Capping Reagents

Capping is a critical step to ensure only full-length oligonucleotides are carried forward in synthesis. Our reliable capping reagents prevent chain errors by blocking unreacted 5’-hydroxyl groups, ensuring purity and consistency in your final product.

Our balanced Capping A and Capping B formulations work together to block unreacted 5’-hydroxyl groups, ensuring:

- Reduction of truncated sequences
- Improvement in downstream purification
- Enhancing reproducibility batch after batch



Capping A

Product No.	Description	Packing
PSR48546	Capping A (Tetrahydrofuran / 2,6-Lutidine / Acetic Anhydride, V / V / V = 80 : 10 : 10) PurOligo	450ML, 2.5L
PSR48547	Capping A, 10 % Acetic Anhydride in THF (Tetrahydrofuran / Acetic Anhydride, V / V = 90 : 10) PurOligo	1L, 2.5 L
PSR50317	Capping A, 9 % Acetic Anhydride in THF PurOligo	450ML, 2.5L
PSR48548	Capping A, 20 % NMI in ACN, (Acetonitrile / N-methylimidazole, V / V = 80 : 20) PurOligo	1 L, 2.5 L
PSR48549	Capping A, Ultramild (Tetrahydrofuran / Pyridine / Phenoxyacetic Anhydride, (V / V / V = 85 : 10 : 5) PurOligo	2.5 L
PSR48550	Capping A, 25 % Acetic Anhydride in ACN (Acetonitrile / Acetic Anhydride, V / V = 75 : 25) PurOligo	450ML, 2.5 L
PSR48551	Capping A, 20 % Acetic Anhydride in ACN (Acetonitrile / Acetic Anhydride, V / V = 80 : 20) PurOligo	450ML, 2.5 L

Capping B

Product No.	Description	Packing
PSR48552	Capping B, 16 % NMI in THF (Tetrahydrofuran / N-methylimidazole, V / V = 84 : 16) PurOligo	2.5 L
PSR48553	Capping B (THF / N-methylimidazole / Pyridine, V / V / V = 80 : 10 : 10) PurOligo	2.5 L
PSR48554	Capping B1 (40 % Acetic Anhydride in Acetonitrile) PurOligo	500ML, 1.5L, 2.5 L
PSR48555	Capping B2 (60 % Lutidine in Acetonitrile) PurOligo	500ML, 1.5L, 2.5 L
PSR48556	Capping B (Acetonitrile / 2,6-Lutidine / N-methylimidazole, V / V / V = 50 : 30 : 20) PurOligo	2.5 L
PSR48557	Capping B (Acetonitrile / Pyridine / N-methylimidazole, V / V / V = 50 : 30 : 20) PurOligo	2.5 L
PSR50319	Capping B (Acetonitrile / 2,6-Lutidine / Acetic anhydride, V / V / V = 50 : 30 : 20) PurOligo	2.5L
PSR48558	Solvent Mix Pyridine in ACN (V / V = 60 : 40) PurOligo	2.5 L

Did you know?

Skipping effective capping can lead to **difficult-to-remove impurities,** increasing purification costs and lowering overall yields.

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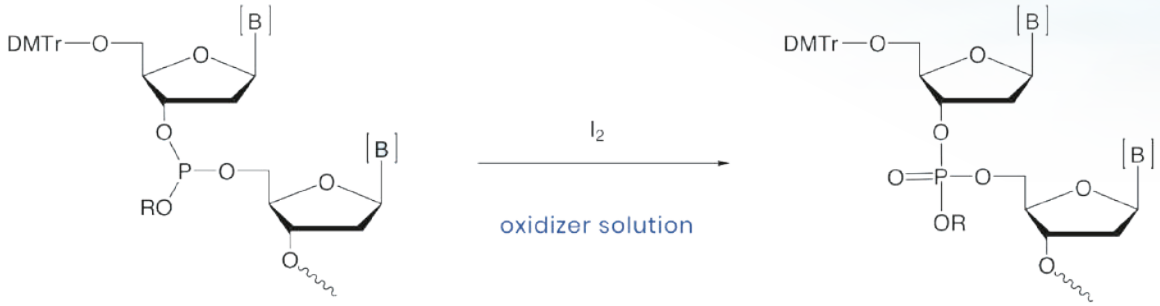
• PurOligo Oxidation Reagents

Oxidizers convert unstable phosphite linkages into stable phosphate backbones using iodine as a mild oxidant, ensuring oligo integrity. They are available in 0.02 M and 0.05 M iodine concentrations with different mixtures of THF, pyridine, and water. Custom blends are also offered. Our Oxidizer [0.05 M iodine in pyridine/water (90:10 v/v)] is ideal for high-quality, large-scale oligonucleotide synthesis with consistent performance.



Product No.	Description	Packing
PSR48559	Oxidizer 0.05 M Iodine in Pyridine / Water (V / V = 90 : 10) PurOligo	450ML, 1 L, 2.5 L, 4L
PSR48560	0.02 M Iodine in THF / Pyridine / Water (V / V / V = 66 : 22 : 12) PurOligo	2.5 L, 4L
PSR48561	0.02 M Iodine in THF / Pyridine / Water (V / V / V = 90.6 : 0.4 : 9) PurOligo	450ML, 2.5 L
PSR48562	0.02 M Iodine in THF / Pyridine / Water (V / V / V = 89.6 : 0.4 : 10) PurOligo	2.5 L
PSR48563	0.02 M Iodine in THF / Pyridine / Water (V / V / V = 70 : 20 : 10) PurOligo	1 L, 2.5 L

Did you know?

The shift from **phosphite (unstable)** to **phosphate (stable)** during oxidation is what makes synthetic oligos mimic the **natural DNA backbone** - without it, the strand would fall apart in minutes.

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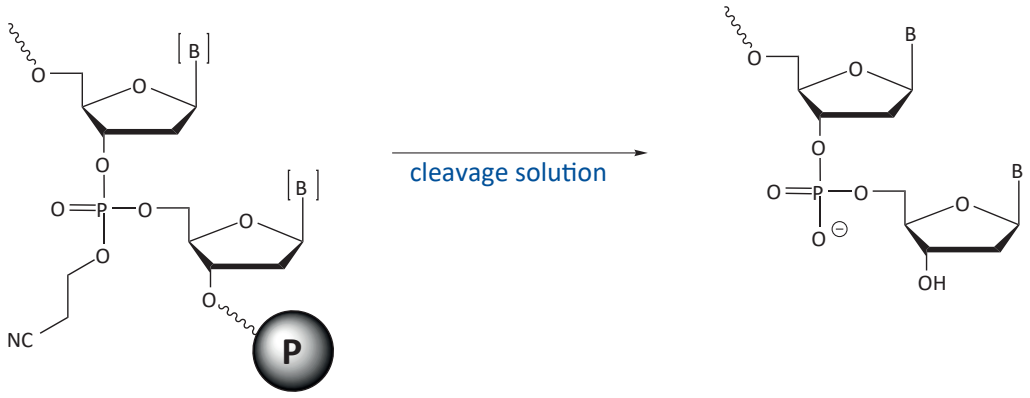
• PurOligo Cleavage & Deprotection Reagents

The final step of automated oligonucleotide synthesis involves cleaving the oligonucleotide from its solid support and removing all protecting groups from the nucleobases and phosphates. PureSynth offers three tailored cleavage solutions to meet different synthesis needs:

Our Portfolio

- **Standard:** Uses one volume of concentrated ammonium hydroxide (≥28%) under sealed conditions.
- **Fast:** Uses one volume of AMA under sealed conditions at 65 °C for just 10 minutes. This method reduces processing time without compromising product quality.
- **Mild:** Employs the required volume of Deprotection, Ultramild solution under sealed conditions at room temperature for 8 hours. Perfect for sensitive oligonucleotides.



Product No.	Description	Packing
PSR48605	Concentrated Ammonia solution (30-33%) PurOligo	2.5L
PSR48606	AMA (conc. Ammonia / 40 % Aqueous Methylamine, V / V = 50 : 50) PurOligo	450ML, 2.5L

Did you know?

High-quality cleavage and deprotection directly influence downstream applications—improving qPCR efficiency by 10–15% in some cases.

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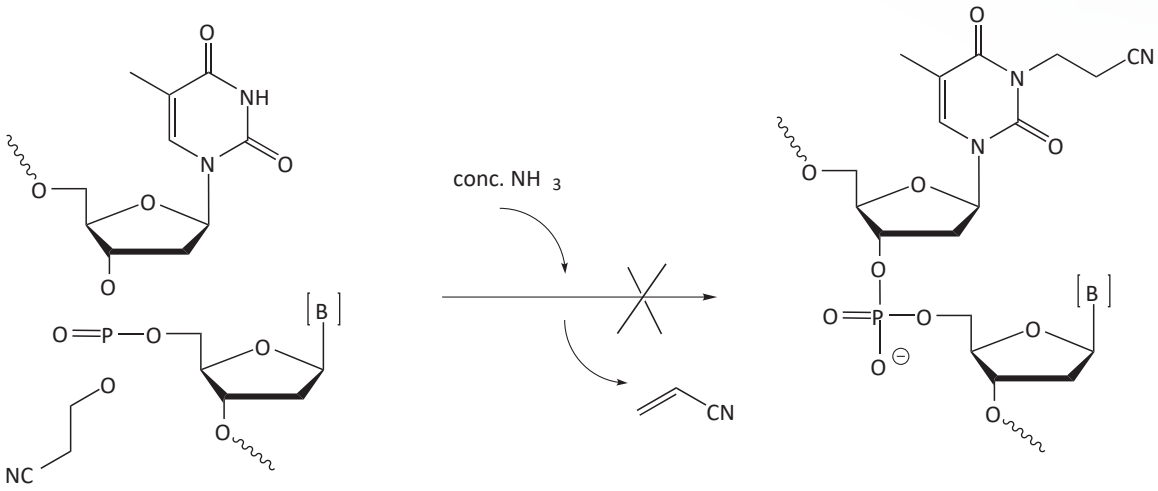
• PurOligo CE-ß-Eliminators

During the simultaneous removal of protecting groups and cleavage of the oligonucleotide from the solid support, a common side reaction is the alkylation of the N3-position of thymidine by acrylonitrile. This byproduct is released during the ß-elimination of the cyanoethyl groups from the phosphate backbone, potentially affecting oligonucleotide integrity.

This unwanted reaction can be effectively prevented by performing the ß-elimination using our flagship product diethylamine in acetonitrile, which scavenges acrylonitrile and protects the thymidine residues.



Product No.	Description	Packing
PSR48608	20 % Diethylamine in Acetonitrile PurOligo	1 L, 2.5 L

Did you know?

Acrylonitrile released during deprotection can damage up to 1 in 10 thymidines—but switching to PurOligo diethylamine in acetonitrile prevents this completely.

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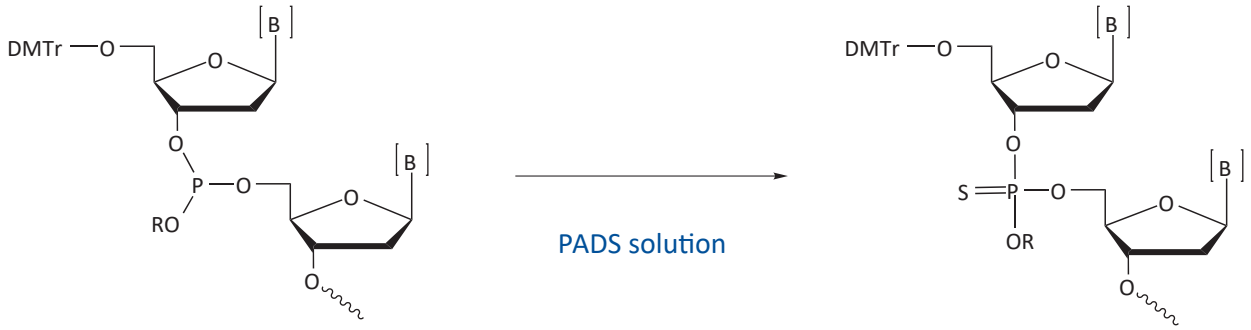
• PurOligo Sulphurizing Reagents

The phosphite triester formed during the coupling step can be efficiently converted into the corresponding phosphorothioate triester by treatment with a 0.2 M solution of phenylacetyl disulfide (PADS) in acetonitrile and 3-picoline (1:1 v/v). Typically, 1.5 column volumes of the PADS solution are sufficient, and complete sulfurization occurs within 3 minutes. After the reaction, any excess reagent is recovered by washing the reaction vessel with PurOligo low moisture solvents.

As an alternative, 5-Amino-3H-1,2,4-dithiazole-3-thione (ADTT, also known as Xanthane Hydride) can be used as a sulfur-transfer reagent, which is particularly suitable for solid-phase oligonucleotide synthesis.



Product No.	Description	Packing
PSR48609	Phenylacetyl Disulfide (PADS) PurOligo	25G, 100G, 500G, 1000G
PSR48610	ADTT (5-Amino-3H-1,2,4-dithiazole-3-thione) PurOligo	100G, 300G 500G

Did you know?

Sulfur-transfer reagents complete sulfurization in just minutes, forming phosphorothioate linkages that enhance nuclease resistance by more than 10-fold.

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• PurOligo Low Moisture Solvents

In oligonucleotide synthesis, even trace amounts of water can disrupt the entire process, leading to incomplete reactions, premature cleavage, or low yields. PurOligo Low Moisture Solvents are engineered to overcome these challenges by offering ultra-low moisture levels (<10 ppm), enabling robust and reliable performance in every synthesis cycle.

Designed for both activation chemistry and washing steps, these solvents safeguard sensitive intermediates and ensure a clean environment for chain elongation. Their unmatched quality and consistency make them the preferred choice for high-throughput synthesis as well as large-scale production.

Key Features & Benefits:

- Ultra-Dry Assurance
- Technical reliability
- High-Purity
- Consistent Lot- to-Lot Quality
- Documentation Available

Product No.	Description	Packing
PSR50320	Acetonitrile, moisture < 10 ppm Bottle with 20 mm crimp/septum PurOligo	100ML
PSR48564	Acetonitrile, moisture < 10 ppm PurOligo	2.5L
PSR50321	Acetonitrile, moisture < 10 ppm Bottle with GL45 thread PurOligo	4 L
PSR50322	Acetonitrile, moisture < 10 ppm Bottle with US38 thread PurOligo	4L
PSR48576	Acetonitrile, Moisture < 20 ppm PurOligo	2.5 L
PSR50323	Acetonitrile, moisture < 20 ppm Bottle with GL45 thread PurOligo	4L
PSR50324	Acetonitrile, moisture < 20 ppm Bottle with US38 thread PurOligo	4L
PSR50275	Pyridine, Moisture < 30 ppm PurOligo	2.5L
PSR50276	Pyridine, Moisture < 30 ppm Bottle with GL45 thread PurOligo	4L
PSR50301	Toluene, Moisture < 20 ppm PurOligo	2.5L
PSR50306	2.0 M Triethylammoniumacetate Buffer (TEAA), pH 7.0 PurOligo	2.5L, 4L

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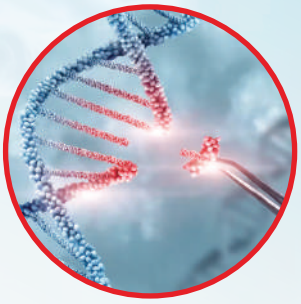
• Application Highlights

Where PurOligo Makes a Difference

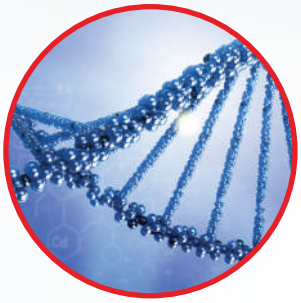
Genetic Diagnostics

High-quality reagents ensure sensitive and reproducible results in PCR, qPCR, and sequencing assays.



Therapeutic Oligonucleotides

Reliable chemistry supports the development of antisense oligos, siRNA, and mRNA-based therapies.



Academic Research

Enables scientists to explore new genetic pathways with confidence in data accuracy.

Industrial-Scale Synthesis

Scalable formulations guarantee consistent performance, from micrograms to kilograms.

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To learn more about Puresynth's Research Chemicals GmbH Portfolio, visit www.pure-synth.com

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