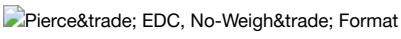

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Citations & References (7)

Thermo Scientific™

Pierce™ EDC, No-Weigh™ Format

Thermo Scientific Pierce EDC is a carboxyl- and amine-reactive zero-length crosslinker. EDC reacts with a carboxyl group first and Read more

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77149	10 mg
A35391	10 x 1 mg
22980	5 g
22981	25 g

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Thermo Scientific Pierce EDC is a carboxyl- and amine-reactive zero-length crosslinker. EDC reacts with a carboxyl group first and forms an amine-reactive O-acylisourea intermediate that quickly reacts with an amino group to form an amide bond with release of an isourea by-product. The intermediate is unstable in aqueous solutions and so two-step conjugation procedures rely on N-hydroxysuccinimide (NHS) for stabilization. Failure to react with an amine will result in hydrolysis of the intermediate, regeneration of the carboxyl, and release of an N-substituted urea. A side reaction is the formation of an N-acylurea, which is usually restricted to carboxyls located in hydrophobic regions of proteins.

no Scientific No-Weigh products are specialty reagents provided in a pre-aliquoted format. The pre-weighed packaging prevents the loss of reagent reactivity and

- *Reactive group*: carbodiimide
- *Reaction target*: activates carboxyl groups to conjugate to amino groups (primary amines)
- **Several conjugation strategies—**react EDC alone with target groups or include NHS or Sulfo-NHS to increase reaction efficiency or to stabilize active intermediate for later reaction to amines
- **Neutral linkage**—forms neutral amide bonds between carboxyls and amines
- **Water-soluble reagent**—add directly to reactions in aqueous, physiological buffers
- **Soluble reaction byproducts**—easily removed by washing with water or dilute acid
- **High-purity, crystalline reagent**—use to create high-quality, activated derivatives

Properties of EDC

- Molecular formula: $C_8H_{17}N_3 \cdot HCl$
- Molecular weight: 191.7
- Spacer arm length: 0 Å
- CAS Number: 25952-53-8
- Reactive groups: carbodiimide
- Reactivity: Forms active intermediate with carboxyl groups at pH 4.7–6.0 (optimum), then intermediate reacts with primary amines

1-Ethyl-3-[3-dimethylaminopropyl]carbodiimide hydrochloride (EDC or EDAC) is a zero-length crosslinking agent used to couple carboxyl groups to primary amines. This crosslinker has been used in diverse applications such as forming amide bonds in peptide synthesis, attaching haptens to carrier proteins to form immunogens, labeling nucleic acids through 5' phosphate groups and creating amine-reactive NHS-esters of biomolecules. EDC reacts with a carboxyl to form an amine-reactive *O*-acylisourea intermediate. If this intermediate does not encounter an amine, it will hydrolyze and regenerate the carboxyl group. In the presence of *N*-hydroxysulfosuccinimide (Sulfo-NHS), EDC can be used to convert carboxyl groups to amine-reactive Sulfo-NHS esters. This is accomplished by mixing the EDC with a carboxyl containing molecule and adding Sulfo-NHS.

Applications:

- Conjugate carboxyl and amino groups among peptides and proteins
- Couple haptens to immunogenic carrier proteins (e.g., attach a peptide to KLH)
- Immobilize peptide antigens to affinity-purify antibodies
- Create NHS-activated, amine-reactive labeling compounds
- Crosslink proteins to carboxyl coated beads or surfaces
- Activate nanoparticles with amine-reactive Sulfo-NHS esters
- DNA labeling through 5' phosphate groups (see Tech Tip #30)

Product References:

Crosslinker Application Guide -- search for recent literature references for this product

For Research Use Only. Not for use in diagnostic procedures.

Specifications

Cell Permeability	No
Description	EDC
Form	Powder
Labeling Method	Chemical Labeling
Molecular Weight (g/mol)	191.7
PEGylated	No
Product Line	Pierce
Quantity	10 mg
Reactive Moiety	Carbodiimide
Shipping Condition	Wet Ice

Water Soluble	Yes
Chemical Reactivity	Amine-Carboxyl
Cleavable	No
Crosslinker Type	Heterobifunctional
Format	Standard, Single-use, Premium-grade
Product Type	Crosslinker
Spacer	Short (<10 Å)
Unit Size	Each

Contents & Storage

Upon receipt store desiccated at -20°C.

Have questions about this product? Ask our AI assisted search.

Ask a question about this product.

What are the general characteristics of N-hydroxysuccinimide esters (NHS Esters)?

Is your EDAC compound the same as your EDC compound?

What is the difference between SulfoLink and CarboxyLink Coupling Resin supports?

What is the difference between GlycoLink and CarboxyLink Gels?

What are the general characteristics of carbodiimides?

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Frequently asked questions (FAQs)

Can NHS and EDC stock solutions be made for long-term storage before use?

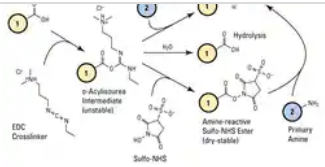
How are NHS and Sulfo-NHS used?

What are NHS and Sulfo-NHS used for?

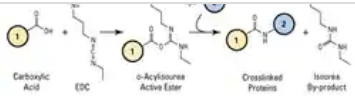
What is the difference between the Thermo Scientific CarboLink (now Glycolink) and CarboxyLink Resins?

How do CarboxyLink and DADPA UltraLink Resins immobilize molecules?

EDC (1-ethyl-3-(3-dimethylaminopropyl)carbodiimide hydrochloride), 10 mg FAQs



Sulfo-NHS plus EDC (carbodiimide) crosslinking reaction scheme



Reaction scheme for EDC crosslinking

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3258384	Certificate of Analysis	Feb 10, 2026	A35391

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Safety Data Sheets

SDS

Scientific Resources

Application Notes

Tech Tip: Modify and label oligonucleotide 5â€™-phosphate groups

Tech Tip: Block amine groups to prevent polymer formation in immunogen production

Product Information

Manuals

User Guide: Pierce EDC, No-Weigh Format

User Guide: EDC

Citations & References (7)

Citations & References	Abstract
Solid phase DNA amplification: characterisation of primer attachment and amplification mechanisms. **Authors:** Adessi C, Matton G, Ayala G, Turcatti G, Mermod JJ, Mayer P, Kawashima E **Journal:** Nucleic Acids Res **PubMed ID:** 11024189	Different chemical methods used to attach oligonucleotides by their 5'-end on a glass surface were tested in the framework of solid phase PCR where surface-bound instead of freely-diffusing primers are used to amplify DNA. Each method was first evaluated for its capacity to provide a high surface coverage of oligonucleotides ... More
Metabolism of vertebrate amino sugars with N-glycolyl groups: elucidating the intracellular fate of the non-human sialic acid N-glycolylneuraminic acid. **Authors:** Bergfeld AK, Pearce OM, Diaz SL, Pham T, Varki A **Journal:** J Biol Chem **PubMed ID:** 22692205	'The two major mammalian sialic acids are N-acetylneuraminic acid and N-glycolylneuraminic acid (Neu5Gc). The only known biosynthetic pathway generating Neu5Gc is the conversion of CMP-N-acetylneuraminic acid into CMP-Neu5Gc, which is catalyzed by the CMP-Neu5Ac hydroxylase enzyme. Given the irreversible nature of this reaction, there must be pathways for elimination or ... More
Surface modification, functionalization and bioconjugation of colloidal inorganic nanoparticles. **rs:** Sperling RA, Parak WJ	Inorganic colloidal nanoparticles are very small, nanoscale objects with inorganic cores that are dispersed in a solvent. Depending on the material they consist of, nanoparticles can possess a number of different properties such as high electron

Extensive terminal and asymmetric processing of small RNAs from rRNAs, snoRNAs, snRNAs, and tRNAs.

Authors: Li Z, Ender C, Meister G, Moore PS, Chang Y, John B

Journal: Nucleic Acids Res

PubMed ID: 22492706

Deep sequencing studies frequently identify small RNA fragments of abundant RNAs. These fragments are thought to represent degradation products of their precursors. Using sequencing, computational analysis, and sensitive northern blot assays, we show that constitutively expressed non-coding RNAs such as tRNAs, snoRNAs, rRNAs and snRNAs preferentially produce small 5' and ... More

The conserved His-144 in the PsbP protein is important for the interaction between the PsbP N-terminus and the Cyt b559 subunit of photosystem II.

Authors: Ido K, Kakiuchi S, Uno C, Nishimura T, Fukao Y, Noguchi T, Sato F, Ifuku K

Journal: J Biol Chem

PubMed ID: 22707728

The PsbP protein regulates the binding properties of Ca(2+) and Cl(-), and stabilizes the Mn cluster of photosystem II (PSII); however, the binding site and topology in PSII have yet to be clarified. Here we report that the structure around His-144 and Asp-165 in PsbP, which is suggested to be ... More

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