LC reagents

Providing the selectivity needed for high-quality separation of charged compounds

Control selectivity, resolve complex ionic mixtures and improve peak symmetry with the use of our LC reagents.

By using the correct reagent you achieve:

- Increased or decreased retention, permitting controlled selectivity
- Resolution of complex ionic mixtures without using ion exchange columns
- Improved peak symmetry

Reagent types:

- High purity pre-column derivatization reagents
- Hydrolysis reagents
- HPLC ion pair reagents
- Derivatization and visualization reagents
- Amino acid detection reagents
- Peptide standards

For more information, visit **thermofisher.com//LCreagents**

HPLC Ion pair reagents

Heptafluorobutyric acid

Ion-pair reagent for the reversed-phase HPLC separation of proteins and peptides

- Typical purity is 99.7% by GC; <0.1% water
- Sequencing reagent for classical and automated Edman degradation of peptides and proteins
- Density: 1.645
- B.P. 120°C
- Packaged under nitrogen in amber glass ampules or bottles
- Clear, colorless liquid

Heptafluorobutyric acid

Description	Quantity		Cat. No.	Quantity
Heptafluorobutyric Acid, Sequencing Grade	100mL	X	TS-25003	1 Each
Heptafluorobutyric Acid, HPLC Grade	10 x 1mL ampules		TS-53104	1 Pack

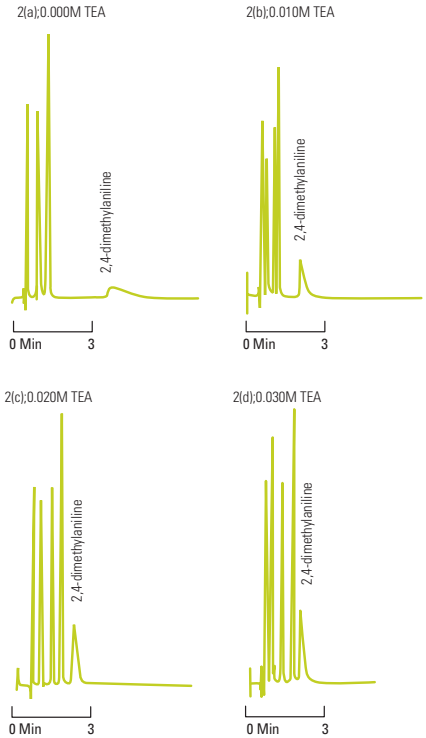
X in the ordering table indicates that hazardous shipping charges apply.

Triethylamine (TEA)

Ideal for HPLC separation and analysis of peptides

Triethylamine is an ion-pairing reagent that alters selectivity in reversed-phase HPLC separations. By pairing with peptides, it effectively sharpens peaks, resulting in improved peak resolution.

- 99.5% triethylamine purity, allowing sensitive peptide detection at low UV wavelengths in reverse-phase HPLC peptide separation systems
- Packaged in amber glass bottles with protective PTFE-lined fluorocarbon caps for reagent integrity
- Has a low UV absorbance to provide the most sensitive detection across all wavelengths



Properties of triethylamine

- Alternate names TEA, Diethylethanamine
- Molecular formula $C_6H_{15}N$ Q`
- Molecular weight 101.19g/mol
- Density 0.726g/mL

Triethylamine (TEA)

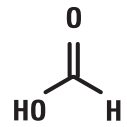
Description	Quantity		Cat. No.	Quantity
Triethylamine, Sequencing Grade	100g	X	TS-25108	1 Each

X in the ordering table indicates that hazardous shipping charges apply.

For more information, visit **thermofisher.com/LCreagents**

Formic acid ampules

Well suited for HPLC and mass spectrometry applications



Formic Acid
MW 46.03

Formic acid is a component found in reverse-phase mobile phases to provide protons for LC-MS analysis. The presence of a low concentration of formic acid in the mobile phase is also know to improve the peak shapes of the resulting separation. Unlike trifluoroacetic acid (TFA), formic acid is not an ion-pairing reagent, and it does not suppress MS ionization of polypeptides when used as a mobile phase component.

- Prescored, nitrogen-flushed, amber glass to protect formic acid from light and moisture
- 99% purity for consistent LC baselines and no interference introduced into LC and mass spectrometry applications
- Convenient format simplifies preparation of gradient and isocratic mobile phases containing 0.1% (v/v) formic acid in water or acetonitrile
- Contents of a single vial in a final volume of 1L solvent yields a mobile phase of the most common formic acid concentration

Formic acid ampules

Description	Quantity	Cat. No.	Quantity
Formic Acid 99+%	10 x 1mL ampules	TS-28905	1 Each

For complex peptide separations, the key to success can be to vary selectivity. Varying mobile phase composition on the same column can change selectivity enough to resolve peptides that would otherwise overlap. The TFA concentration is usually specified as 0.1% for reverse-phase HPLC of peptides. For reproducible separations from run-to-run or from lab-to-lab, it is essential to make concentrations the same.

Derivatization and visualization reagents for HPLC

Trifluoracetic acid (TFA)

Routinely used ion-pairing agent in reversed-phase peptide separations

- Purity: >99.5% TFA and exceptional clarity allows sensitive, non-destructive peptide detection at low UV wavelengths
- High-performance packaging: Packaged under nitrogen in amber glass with protective TFE-lined fluorocarbon caps to ensure TFA integrity
- Choice of formats for convenience: 1mL ampules can prepare 1L of 0.1% v/v TFA solution for the mobile phase in reversed-phase chromatography in moments

Trifluoracetic acid (TFA)

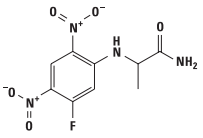
Description	Quantity		Cat. No.	Quantity
Trifluoracetic Acid, Sequencing Grade	500mL	X	TS-28901	1 Each
Trifluoracetic Acid, Sequencing Grade	100g	X	TS-28903	1 Each
Trifluoracetic Acid, Sequencing Grade	10 × 1mL	X	TS-28904	1 Pack
Trifluoracetic Acid, Sequencing Grade	1g	X	TS-28902	1 Each

X in the ordering table indicates that hazardous shipping charges apply.

FDAA, Marfey's reagent

Makes separation and quantitation of optical isomers of amino acids by reversed-phase chromatography quick and easy

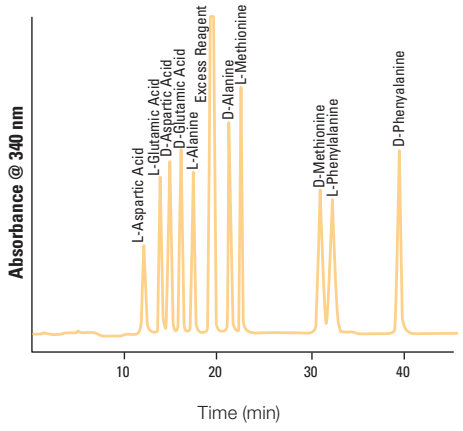
- Optical isomers of amino acids derivatization complete in just 90 minutes
- Derivatives have an absorption coefficient of ~3 x 10^4
- Derivatives can be detected by UV at 340nm with picomole sensitivity



FDAA
(Marfey's Reagent)
MW 272.19

FDAA, marfey's reagent

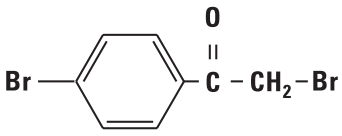
Description	Quantity	Cat. No.	Quantity
FDAA, Marfey's Reagent	50mg	TS-48895	1 Each



p-Bromophenacylate reagent

Gives quantitative yields with few or no side reactions

- Premixing of phenacylbromide and crown ether is not necessary
- Derivatization is both rapid and quantitative, with yields of >95% in 15 to 20 minutes at 80°C
- Excess reactants do not interfere
- Large excess of alkylating reagent is not necessary
- Small amounts of water or alcohol do not interfere
- If isolation is desired, products are usually crystalline



***p*-Bromophenacylate**
MW 277.94

p-bromophenacylate reagent

Description	Quantity	Cat. No.	Quantity
p-Bromophenacylate Reagent	10mL	TS-48891	1 Each

TNBSA (Trinitrobenzene Sulfonic Acid)

An excellent choice for spectrophotometric detection

- Couples with primary amines, sulfhydryls and hydrazides in aqueous solution at pH 8, without undesirable side reactions
- Excellent for solution or solid phase analysis
- Suitable for qualitative and quantitative estimation of biomolecules; including amino acids, eptides or proteins
- Chromogenic, Omax = 335nm
- Colored derivatives are monitored at 345nm and have extinction coefficients in range of 1-1.5 x 10^4

TNBSA

Description	Quantity		Cat. No.	Quantity
TNBSA	100mL	X	TS-28997	1 Each

X in the ordering table indicates that hazardous shipping charges apply.

Hydrolysis reagents

Constant Boiling (6N) Hydrochloric Acid

Sequencing-grade reagent for total protein hydrolysis

- Hydrolyzes peptides in 6 hours at 150°C
- Specially purified to give ninhydrin-negative blank on hydrolysis
- Packaged in prescored ampules to eliminate contamination and ensure product integrity

Constant boiling (6N) hydrochloric acid

Description	Quantity	Cat. No.	Quantity
Hydrochloric Acid 6N	10 × 1mL	TS-24308	1 Pack

Amino Acid Standard H

High-purity calibration standard for protein hydrolysates

- Uses L-form configuration to permit standardization of microbial and other assays
- Molar concentration verified by conventional amino acid analysis methods
- With the exception of cystine, each amino acid is supplied at a concentration of 2.5µmoles/mL in 0.1N HCl

The following amino acids are included in amino acid standard H:
L-Alanine, Ammonia [$(NH_4)_2SO_4$], L-Arginine, L-Aspartic Acid, L-Cystine, L-Glutamic Acid, Glycine, L-Histidine, L-Isoleucine, L-Leucine, L-Lysine•HCl, L-Methionine, L-Phenylalanine, L-Proline, L-Serine, L-Threonine, L-Tyrosine, L-Valine.

Amino acid standard H

Description	Quantity	Cat. No.	Quantity
Amino Acid Standard H	10 × 1mL	TS-20088	1 Pack

When kept frozen, an unopened vial has an indefinite storage life. Once the seal is broken, the reagent has a maximum storage life of six months. Store frozen between uses.

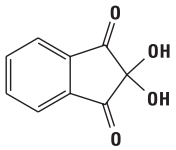
For more information, visit **thermofisher.com/LCreagents**

Amino acid detection reagents

Ninhydrin

The reagent of choice for detection of amino acids

- Used in amino acid chromatography
- Offers superb color response and low blank
- Indefinitely stable and requires no refrigeration



Ninhydrin
MW 178.14

Ninhydrin

Description	Quantity	Cat. No.	Quantity
Ninhydrin	500g	TS-21003	1 Each

Indefinitely stable. No refrigeration required. Keep bottle tightly sealed. Avoid exposure to direct sunlight and ammonia.

HPLC and spectrophotometric grade solvents

Ultrapure solvents are carefully packed for thorough protection

- Distilled in glass, filtered through 0.2µm TFE membranes and packed in solvent-rinsed, amber glass bottles
- TFE-lined screw caps seal bottles

Acetonitrile, HPLC grade, physical properties

- UV Cutoff: 190nm
- Optical Absorbance: <0.02 at 220nm
- Refractive Index at 25°C: 1.342

Water, HPLC grade, physical properties

- UV Cutoff: 190nm
- Optical Absorbance: <0.005 at 220nm
- Refractive Index at 25°C: 1.332

Dimethylformamide (DMF), sequencing grade, physical properties

- $HCON(CH_3)2$
- Purity (GC): ≥99%
- MW: 73.09
- Density: 0.944
- B.P. 153°C
- Water: 0.1%

Dimethylsulfoxide (DMSO), sequencing grade, physical properties

- C_2H_6OS
- Purity (GC): >99.5%
- MW: 78.13
- Density: 1.101
- Water: ≤0.2%

Pyridine, physical properties

- C_5H_5N
- Purity (GC): ≥99%
- MW: 79.10
- Density: 0.978
- B.P. 115°C

HPLC and spectrophotometric grade solvents

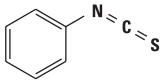
Description	Quantity		Cat. No.	Quantity
Acetonitrile	1L	X	TS-51101	1 Each
Water	1L		TS-51140	1 Each
Dimethylformamide (DMF)	50mL	X	TS-20673	1 Each
Dimethylsulfoxide (DMSO)	950mL	X	TS-20688	1 Each
Pyridine	100g	X	TS-25104	1 Each

X in the ordering table indicates that hazardous shipping charges apply.

High-purity pre-column derivatization reagents

PITC (Phenylisothiocyanate)

High-purity reagent for pre-column quantitative derivatization of amino acids by reversed-phase HPLC



PITC
Edman's Reagent
MW 135.19

- Also known as Edman's Reagent
- Reacts readily with amino acids in 5 to 10 minutes at room temperature
- Resulting phenylthiocarbamyl derivatives can be separated and quantified in 30 minutes using reverse-phase HPLC to produce stable products with all amino acids including proline

PITC (Phenylisothiocyanate)

Description	Quantity	Cat. No.	Quantity
PITC (Edman's Reagent)	10 × 1mL	TS-26922	1 Pack

For more information, visit **thermofisher.com/LCreagents**