

## Reagents, Diluents &amp; Sample Preparation Solutions



## Trione® Ninhydrin Reagent

### Chromatographic Grade™ A Prepared Reagent for Post-column Derivatization of Primary and Secondary Amines

TRIONE® Ninhydrin reagent is specially formulated for Amino Acid Analysis. It contains Ninhydrin, Hydrindantin (reduced Ninhydrin), a Lithium Acetate buffer, and Sulfolane, a water-miscible organic solvent. The solvent is necessary to maintain the solubility of both the Hydrindantin and the primary amine product, Ruhemann's Purple. The buffer is required because the reaction is pH dependent. The active ingredients - Ninhydrin and Hydrindantin are required for proper development of secondary and primary amines, respectively.

TRIONE® is so stable that it does not require refrigeration, either in shipment, storage, or in the reservoir. Quantitation is consistent from the first to the last mL, so there is no waste. The high signal-to-noise ratio of TRIONE®, when compared to DMSO-containing reagents, permits detection sensitivity to be increased with minimum increase in background noise - a feature particularly appreciated at sample concentrations of <50 picomoles.

*Two preparations are available to suit your usage and storage requirements:*

#### T100 and T100C

- Pour into your reservoir and use; the ultimate in convenience with a minimum of handling.
- 4-month\* shelf life

#### T200

- Combine the two provided solutions, swirl, and use.
- 12-month\* shelf life before mixing; one month in the reservoir after preparation.

Trione® Ninhydrin Reagent Catalog Information		
Catalog No.	Description	Quantity
T100	TRIONE® Ninhydrin Reagent (4-month* shelf life)	Each ( 950 mL/bottle)
T100C	TRIONE® Ninhydrin Reagent (4-month* shelf life)	Case of 4 (950 mL/bottle)
T200	TRIONE® Two-part Ninhydrin Reagent (12-month* shelf life before mixing)	To prepare case of 4 (900 mL/bottle)

\* From date of manufacture

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## Thiofluor™

### N,N-Dimethyl-2-Mercaptoethylamine Hydrochloride – Chromatographic Grade™ for Post-column Derivatization of Primary Amines

Primary amines form highly fluorescent adducts when reacted with o-Phthalaldehyde (OPA) and a mercaptan under basic conditions.

The products of this reaction, 1-alkyl-2-thioalkyl-substituted isoindoles, exhibit optimal excitation at 330 nm and maximal emission at 465 nm.

Pickering's Thiofluor™, a solid, nearly odorless nucleophile, is a superior substitute for 2-Mercaptoethanol in the preparation of OPA reagents. It forms a more stable reagent and a longer-lasting fluorophore with OPA than does 2-Mercaptoethanol, yet it has the same fluorescence properties.

Unlike the volatile 2-Mercaptoethanol, Thiofluor™ will not migrate through the gas manifold and regulator of the OPA reagent pressurization system.

Two grams of Thiofluor™ is equivalent to 1 mL of 2-Mercaptoethanol.

## o-Phthalaldehyde (OPA)

### Chromatographic Grade™ for Post-column Derivatization of Primary Amines

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Pickering's OPA is specially prepared to meet the demanding requirements of high-sensitivity pre- and post-column HPLC derivatization methods. Our repurification process actually begins with commercially available 99 % material.

The entire process is controlled to eliminate trace interfering contamination. Lot quality is verified by post-column HPLC using a high-sensitivity fluorescence detector.

## Vanillin

### 4-Hydroxy-3-Methoxybenzaldehyde Chromatographic Grade™ for Post-column Analysis of Polyether Antibiotics

Reagent formulation with Vanillin, Methanol and Sulfuric Acid allows specific post-column analysis of polyether antibiotics, such as Monensin, Narasin and Salinomycin. This reagent can also be used for the post-column derivatization of Sulfa Drugs. Polyether antibiotics are monitored at 520 nm and Sulfa Drugs at 400 nm.

Chromatographic Grade™ Vanillin meets the exacting purity requirements for a post-column chemical, ensuring that detection at 520 nm will be free of reagent artifacts. Because it is sensitive to oxygen, Pickering Laboratories Vanillin is sealed under Argon gas.



Thiofluor™	
Catalog No.	Description
3700-2000	Thiofluor™, each (10 g/bottle)



o-Phthalaldehyde (OPA)	
Catalog No.	Description
O120	o-Phthalaldehyde (OPA), each (5 g/bottle)



Vanillin	
Catalog No.	Description
3700-2200	Vanillin, each (30 g/bottle)
1700-2200	Vanillin, each (300 g/bottle)

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## Naphthalene-2,3-dicarboxaldehyde

### Chromatographic Grade™ for Derivatization of Primary Amino Groups

Naphthalene-2,3-dicarboxaldehyde reacts with primary amines in presence of a nucleophile (e.g., mercaptan) and forms highly fluorescent 1-Alkylbenz-2-thioalkyl[f]isoindole derivatives.

This reagent is especially effective for post-column or precolumn derivatization of proteins, peptides and other large amines since the derivative is stable and doesn't internally quench.

Naphthalene-2,3-dicarboxaldehyde can also be used as a reagent for chemiluminescence analysis.

## p-Dimethylaminobenzaldehyde (DMAB)

### Chromatographic Grade™ for Post-column Analysis of Sulfa Drugs in Feed and Animal Tissues

p-Dimethylaminobenzaldehyde (DMAB; Ehrlich's Reagent) reacts rapidly with many primary amines to form a complex with maximum absorbance at 450 nm.

Reversed-phase LC followed by post-column derivatization is used to determine the levels of Sulfamethazine, Sulfathiazole and related compounds in feeds, premixes and animal tissues. Although these compounds have a UV chromophore, so do most of the other constituents in the complex sample matrix. Forming a colored derivative post-column allows shifting of the detection wavelength into the visible range thus greatly enhancing selectivity.

## o-Phthalaldehyde (OPA) Diluent

### Chromatographic Grade™ for Preparation of o-Phthalaldehyde Reagents

The derivatization of primary amines with o-Phthalaldehyde and a mercaptan requires basic conditions. To ensure the optimum pH of the reaction, it is important to use the correct diluent.

Three application specific diluents are available : CB910 and GA104 for Carbamate and Glyphosate analyses respectively, and OD104 for analysis of amino acids and other amines.

These borate buffers are produced from starting materials which are free of heavy metals and amines. As with most other products manufactured by Pickering Laboratories, the quality of the OPA Diluents is verified by actual post-column HPLC analysis.



Naphthalene-2, 3-Dicarboxaldehyde	
Catalog No.	Description
3700-0100	Naphthalene-2,3-dicarboxaldehyde, each (500 mg/bottle)



p-Dimethyl Amino Benzaldehyde (DMAB)	
Catalog No.	Description
3700-0400	p-Dimethylaminobenzaldehyde (DMAB), each (30 g/bottle)
1700-0400	p-Dimethylaminobenzaldehyde (DMAB), each (300 g/bottle)



o-Phthalaldehyde (OPA) Diluent	
Catalog No.	Description
CB910	o-Phthalaldehyde (OPA) Diluent for Carbamate Analysis, case of 4 (950 mL /bottle)
GA104	o-Phthalaldehyde (OPA) Diluent for Glyphosate Analysis, case of 4 (950 mL /bottle)
OD104	o-Phthalaldehyde (OPA) Diluent for Amino Acids and Amines analysis, case of 4 (950/bottle)

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## Hydrolysis Reagent CB130

### Chromatographic Grade™

This 0.05 M NaOH/C47™ reagent is applied in the first stage of post-column Carbamate derivatization. At 100 °C the separated carbamates are converted from urethanes to methylamines. The methylamines can then react with OPA and Thiofluor™ to form the characteristically fluorescent isoindole.

Hydrolysis Reagent contains C47™ which prevents the precipitation of insoluble minerals (e.g. Ca<sup>2+</sup>, Mg<sup>2+</sup>) from samples of hard drinking water and ground water. The C47™ additive complexes these minerals and keeps them in solution.

## Hydrolysis Reagent CB130.2

### Chromatographic Grade™

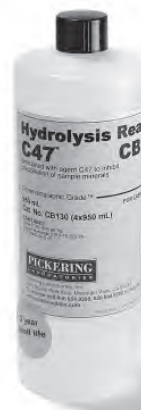
The new Hydrolysis Reagent CB130.2 is formulated according to USEPA Method 531.2 and contains 0.075 M Sodium Hydroxide. This reagent is applied during the first stage of post-column derivatization for the analysis of Carbamate pesticides.

Hydrolysis Reagent CB130.2 contains C47™, which prevents the precipitation of insoluble minerals from samples of hard drinking and ground water, and protects your instruments from damage.

## Hypochlorite Diluent GA16

### Chromatographic Grade™ for the Preparation of the Oxidizing Reagent for Post-column Glyphosate Herbicide Analysis

This diluent is used to prepare the oxidizing reagent required to convert Glyphosate to a primary amine prior to reacting it with OPA. The reagent is prepared by adding 100 µL of 5 % solution of Sodium hypochlorite to one 950 mL bottle of Diluent. The pH 11.6 diluent is formulated to ensure pH stability of the mixed stream of column effluent and oxidizing reagent. This diluent could also be used in fluorescence detection of other secondary amines.



Hydrolysis Reagent	
Catalog No.	Description
CB130	Hydrolysis Reagent for Carbamate analysis 0.05 M, case of 4 (950 mL/bottle)
CB130.2	Hydrolysis Reagent for Carbamate analysis 0.075 M, case of 4 (950 mL/bottle)



Hypochlorite Diluent	
Catalog No.	Description
GA16	Hypochlorite Diluent for Glyphosate analysis, case of 4 (950 mL/bottle)

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## Li220 & Na220

### Chromatographic Grade™ Samples and Standards Diluents for Amino Acid Analysis

Use of these diluents is essential to ensuring reproducibility from injection to injection. They establish a uniform pH and ion concentration at the outset, regardless of the source and pre-treatment of the sample. The sample is maintained buffered and at optimum pH for sample storage and analysis.

Use Li220 for prepared physiological samples and to dilute amino acid calibration standards for use with Lithium columns and buffers. Use Na220 for hydrolysate samples and to dilute amino acid calibration standards for use with Sodium columns and buffers.

## SERAPREP™ & URIPREP™

### Chromatographic Grade™ Reagents for the Preparation of Native Samples for Amino Acid Analysis

Preparation of samples such as serum, urine, other physiological fluids, plant extracts, foods and beverages requires control of pH and normality, as well as removal of soluble protein.

The samples must be held to a narrow pH range between 2.1 and 2.5, and at the proper Lithium ion concentration to ensure reproducibility in the early part of the chromatogram.

SERAPREP™ and URIPREP™ replace commonly used protein precipitation reagents such as Acetonitrile, Perchloric acid, and Picric acid, and eliminate the need for dialysis, ultrafiltration, and the repeated centrifugation steps, followed by pH adjustment.

SERAPREP™ is used for preparing serum and other samples with high buffering capacity, e.g. sardine oil. URIPREP™ is used for urine and other samples with low buffering capacity, such as fruit juices, beer and wines. The efficiency of protein precipitation and need for post-centrifugation pH adjustment of the sample determine which reagent is best for your particular sample.



Li220 & Na220	
Catalog No.	Description
Li220	Lithium Diluent, pH 2.36, case of 4 (250 mL/bottle)
Na220	Sodium Diluent, pH 2.20, case of 4 (250 mL/bottle)



SERAPREP™ & URIPREP™	
Catalog No.	Description
SP100	SERAPREP™, each (250 mL/bottle)
UP100	URIPREP™, each (250 mL/bottle)

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## Chlorac™ Buffer

### Chromatographic Grade™ for Preservation of Aqueous Carbamate Samples

Trace analysis of Carbamate insecticide residues in drinking water is a mandated requirement in the United States. Because several of the common Carbamates—Carbaryl, Oxamyl, Hydroxycarbofuran - are labile in water due to oxidation or hydrolysis, the samples and standards must be preserved in order to obtain valid results.

ChlorAC™ Buffer from Pickering Laboratories is a highly purified Chromatographic Grade™ preservative. It is prepared from Monochloroacetic acid and Potassium acetate to EPA specifications. ChlorAC™ is guaranteed to be free of co-eluting interferences for the analytes in EPA 531.1.



ChlorAC™ Buffer	
Catalog No.	Description
1700-0132	ChlorAC Buffer, each (250 mL/bottle)
1700-0025	ChlorAC Buffer, case of 4 (25 mL/bottle)

## RESTORE™

### Chromatographic Grade™ for Removal of Metal Ion Contamination and Restoration of Proper Ion Balance in Glyphosate Analytical Columns and Guards

Glyphosate herbicide analysis by post-column derivitization and HPLC according to US EPA Method 547 employs a cation-exchange column. Many polyvalent metal ions which may be present in the sample, especially Iron, will accumulate in the guard or analytical column. As little as 100 nmole of Ferric Iron, for example, will cause serious degradation of column performance; larger amounts can actually cause the Glyphosate peak to vanish completely.

Glyphosate RESTORE™ rapidly removes Iron and all other polyvalent metals from the column and guard. In addition, it preserves the balance of K<sup>+</sup>/H<sup>+</sup> in the resin, thus avoiding a lengthy re-equilibration.



RESTORE™	
Catalog No.	Description
1700-0140	RESTORE™, each (250 mL/bottle)