

Technical Bulletin 112

Detergent Analysis

Each lot of Anatrace® detergent is analyzed so that you can be assured of the highest consistent quality available anywhere. Our Anagrade® detergents are purified to be greater than 99% pure as measured by HPLC and to be low in UV absorbing or fluorescent impurities.

We are pleased to list below the analytical procedures used to evaluate our detergents. Should you have any questions about these procedures, please feel free to contact us.

Measurement of Purity (HPLC)

Anagrade detergents are greater than 99% pure and Sol-Grade® detergents are greater than 97% pure as determined by HPLC. The column used is a standard C18 column (4.6 mm x 250 mm) in conjunction with a light scattering detector. An eluant of either acetonitrile/water or methanol/water is acceptable. The ratio will vary depending on the hydrophobicity of the detergent. Some examples are given below:

Detergent	Acetonitrile/water	Methanol/water
n-Heptyl- β -D-Glucopyranoside	25/75	45/55
n-Nonyl- β -D-Glucopyranoside	35/65	55/45
n-Hexyl- β -D-Maltopyranoside	20/80	40/60
n-Octyl- β -D-Maltopyranoside	30/70	55/45
n-Nonyl- β -D-Maltopyranoside	35/65	60/40
n-Dodecyl- β -D-Maltopyranoside	45/55	75/25
n-Tridecyl- β -D-Maltopyranoside	60/40	80/20
n-Hexadecyl- β -D-Maltopyranoside	70/30	90/10
Fos-Choline®-10	45/55	65/35
Fos-Choline-12	45/55	75/25
Fos-Choline-14	45/55	85/15
CYMAL®-3	35/65	65/35
CYMAL-5	45/55	70/30

Some impurities may be less than one percent and still affect the properties of a detergent lot. Therefore, the following tests are also performed to insure that you receive the highest quality detergent available.

Absorbance

The absorbance of the detergent solution (1% w/v) in water is measured in the UV region. Glucosides and maltosides should have low absorbance throughout this region.

Fluorescence

The fluorescence of the detergent solution (0.1% w/v) in water is compared to a standard BSA solution unless otherwise stated. The excitation wavelength is 280 nm and the emission is measured at 345 nm.



Conductance

The conductance of the detergent solution (10% w/v) in water is routinely measured. For those detergents which are nonionic or zwitterionic, a detergent solution should have conductance nearly the same as deionized water.

Solubility in water:

The solubility of the detergent solution in water is routinely tested. Many of the impurities in detergent preparations are not soluble in water; the cloudiness of a detergent solution at a concentration where it is known to be soluble indicates the presence of an insoluble impurity.

Measurement of pH

The pH of the detergent solution is routinely measured. The pH should be neutral for detergents that are either non-ionic or zwitterionic.

Alcohol contamination

Glucoside and maltoside detergents are prepared from the corresponding hydrophobic alcohol. Trace amounts of this alcohol in the detergent lot can cause cloudiness in a detergent solution. Therefore, we measure the amount of alcohol in each lot of detergent by HPLC.

Alpha isomer

Glucoside and maltoside detergents have two isomeric forms, α and β . Each β detergent is analyzed for the percent α isomer present by HPLC.

Lot analysis, shipping and storage

Every lot of Anatrace detergent will be shipped with a certificate of analysis listing the results of the appropriate tests described above. **Anapoe® detergents should be stored refrigerated in the dark. All other detergents should be stored frozen and kept dry. Warm to room temperature before opening the container.**

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