

At Anatrace, we prepare nearly all of the more than ninety detergents listed in our catalog. Each lot is analyzed so that you the researcher can be assured of the highest consistent quality available anywhere. Nearly all of our ANAGRADE<sup>®</sup> detergents are purified chromatographically to be greater than 99% pure as measured by HPLC, to be low in UV absorbing or fluorescent impurities.

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

### Measurement of purity (HPLC)

Nearly all detergents sold as ANAGRADE<sup>®</sup> quality are greater than 99% pure as determined by HPLC. SOL-GRADE<sup>®</sup> detergents are greater than 97% or 98% pure. The column used is a standard C18 column (4.6 mm x 250 mm) in conjunction with an RI 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- $\beta$ -D-glucopyranoside	25/75	55/45
n-Nonyl- $\beta$ -D-glucopyranoside	35/65	55/45
n-Hexyl- $\beta$ -D-maltopyranoside	20/80	40/60
n-Octyl- $\beta$ -D-maltopyranoside	30/70	55/45
N-Nonyl- $\beta$ -D-maltopyranoside	35/65	60/40
n-Dodecyl- $\beta$ -D-maltopyranoside	45/55	75/25
n-Tridecyl- $\beta$ -D-maltopyranoside	60/40	75/25
n-Hexadecyl- $\beta$ -D-maltopyranoside	70/30	85/15
FOS-CHOLINE <sup>®</sup> -10	45/55	65/35
FOS-CHOLINE <sup>®</sup> -12	45/55	75/25
FOS-CHOLINE <sup>®</sup> -14	45/55	85/15
CYMAL <sup>®</sup> -3	35/65	55/45
CYMAL <sup>®</sup> -5	45/55	65/35

# It's all about purity.

## Detergent Analysis

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 of detergent reagent available anywhere.

### Absorbance

The absorbance of the detergent solution (1% w/v unless otherwise stated) in water is measured in the UV region. Glucopyranosides and maltopyranosides should have low absorbance throughout this region. Some detergents such as C-HEGA<sup>®</sup>, HEGA<sup>®</sup> and MEGA detergents have high absorbance at 225 nm.

### Fluorescence

The fluorescence of the detergent solution is compared to a standard BSA solution (0.1%) unless otherwise stated. The excitation wavelength is 280 nm and the emission is measured at 345 nm. A very low level of impurity can still result in a large fluorescence background.

### Conductance

For those detergents which are nonionic or zwitterions, a solution of detergent should have conductance nearly the same as deionized water. Measurement of conductance gives a very sensitive test for the presence of ionic impurities.

### Solubility in water

Many of the impurities in detergent preparations are not soluble in water. Therefore 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 at an appropriate concentration is measured. The pH should be neutral for detergents that are either uncharged or a zwitterion.

### 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 the detergent solution. Therefore, we measure the amount of alcohol in each lot of detergent. A 25 to 50% solution of detergent in methanol is injected into an HPLC system as described under **Measurement of purity (HPLC)**. The ratio of acetonitrile to water may vary depending on the hydrophobicity of the alcohol.

### Alpha isomer

Glucoside and maltoside detergents have two isomeric forms— $\alpha$  and  $\beta$ . Each  $\beta$  detergent is analyzed for the percent  $\alpha$  isomer present. A sample of detergent is injected into an HPLC system as described under **Measurement of purity (HPLC)**. For this analysis the ratio of acetonitrile to water is lower so that the detergent is retained longer and the separation of  $\alpha$  and  $\beta$  isomers is accomplished. The ratio of solvents for separation will vary depending on the condition of the column and the detergent being analyzed.

### Lot analysis, shipping and storage

Every lot of detergent sold by Anatrace will be shipped with an analysis sheet listing the results of the appropriate tests described above. All detergents are high purity products shipped to you by overnight delivery. **ANAPOE<sup>®</sup> 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.**

All concentrations listed as percent are weight/volume.  
BSA is bovine serum albumin.

# Anatrace