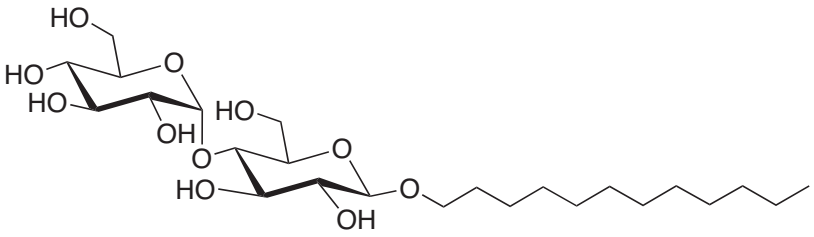
anatrace

Technical Bulletin 110

Selecting the Grade of Detergent that is Right for Your Application

The following discussion of grades of Dodecyl Maltoside, one of our most popular detergents, would apply to selecting an appropriate grade of any detergent in our product offering.

Five grades of Dodecyl Maltoside are listed below and on the reverse side. The grade you purchase depends on your application.



D310A and D310S are usually of sufficient purity for extraction and purification of membrane proteins. Indeed, D310S is greater than 98% pure and often is more pure than the Dodecyl Maltoside you may purchase from other suppliers.

D310A is greater than 99% pure but contains up to 15% alpha isomer.

D310 is 99% pure or greater and meets many other purity requirements, such as low absorbance in the UV. This grade is generally used when purification steps require high purity detergent or for studies using a purified membrane protein.

For crystallization studies, there may be a requirement for Dodecyl Maltoside containing very little of the alpha isomer. D310LA contains less than 0.2% alpha isomer. The alpha isomer itself is also available (D310HA).

D310T is tail deuterated and is useful for NMR studies.

If you don't see the particular grade or detergent you need in our product offering, please contact us. Along with our vast portfolio of products, our chemists can develop specialized solutions tailored to meet your unique specifications. We can also provide custom synthesis services and expert analytical work to aid your own research and development team. The possibilities are limitless—just like the levels of perfection we reach for.

D310A **n-Dodecyl–β–D-Maltopyranoside, Anagrade**

[n-Dodecyl–β–D-Maltoside / Lauryl Maltoside / Dodecyl 4-O–α–D- Glucopyranosyl–β–D-Glucopyranoside / DDM / LM] (Contains up to 15% alpha isomer)

Chemical Properties:

FW: 510.6 [69227-93-6] $C_{24}H_{46}O_{11}$
CMC (H_2O): ~ 0.17 mM[1] (0.0087%)
CMC (0.2 M NaCl): ~ 0.12 mM[2]
Aggregation number (H_2O): ~ 78-149[1-2]
dn/dc: 0.1435 ml/gm[4]
Micelle size: 72 kDa[5]

Product Specifications:

Purity (β + α): ≥ 99% by HPLC analysis
Percent anomer: < 15 α (HPLC)
Percent dodecanol: < 0.005 (HPLC)
pH (1% solution in water): 5-8
Solubility in water at 0-5°C: ≥ 20%
Conductance (10% solution in water): < 40 µS
Percent fluorescence due to a 0.1% solution in water at 345 nm: < 10
Absorbance of a 1% solution in water:
340 nm: < 0.02
280 nm: < 0.04
260 nm: < 0.06
225 nm: < 0.1

D310S **n-Dodecyl–β–D-Maltopyranoside, Sol-Grade**

[n-Dodecyl–β–D-Maltoside / Lauryl Maltoside / Dodecyl 4-O–α–D-Glucopyranosyl–β–D-Glucopyranoside / DDM / LM]

Chemical Properties:

FW: 510.6 [69227-93-6] $C_{24}H_{46}O_{11}$
CMC (H_2O): ~ 0.17 mM[1] (0.0087%)
CMC (0.2 M NaCl): ~ 0.12 mM[2]
Aggregation number (H_2O): ~ 78-149[2]
dn/dc: 0.1435 ml/gm[4]
Micelle size: 72 kDa[5]

Product Specifications:

Purity (β + α): ≥ 98% by HPLC analysis
Percent anomer: < 5 α (HPLC)
Percent dodecanol: < 0.05 (HPLC)
pH (1% solution in water): 4-9
Solubility in water at 20°C: ≥ 20%
Conductance (10% solution in water): < 100 µS
Absorbance of a 1% solution in water:
340 nm: < 0.05
280 nm: < 0.1
260 nm: < 0.1
225 nm: < 0.2

D310 **n-Dodecyl–β–D-Maltopyranoside, Anagrade**

[n-Dodecyl–β–D-Maltoside / Lauryl Maltoside / Dodecyl 4-O–α–D-Glucopyranosyl–β–D-Glucopyranoside / DDM / LM]

Chemical Properties:

FW: 510.6 [69227-93-6] $C_{24}H_{46}O_{11}$
CMC (H_2O): ~ 0.17 mM[1] (0.0087%)
CMC (0.2 M NaCl): ~ 0.12 mM[2]
Aggregation number (H_2O): ~ 78-149[1-2]
dn/dc: 0.1435 ml/gm[4]
Micelle size: 72 kDa[5]

Product Specifications:

Purity (β + α): ≥ 99% by HPLC analysis
For molar volume check reference 3.
Percent anomer: < 2 α (HPLC)
Percent dodecanol: < 0.005 (HPLC)
pH (1% solution in water): 5-8
Solubility in water at 0-5°C: ≥ 20%
Conductance (10% solution in water): < 40 µS
Percent fluorescence due to a 0.1% solution in water at 345 nm: < 10
Absorbance of a 1% solution in water:
340 nm: < 0.02
280 nm: < 0.04
260 nm: < 0.06
225 nm: < 0.1

D310LA **n-Dodecyl–β–D-Maltopyranoside, Anagrade**

[n-Dodecyl–β–D-Maltoside / Lauryl Maltoside / Dodecyl 4-O–α–D-Glucopyranosyl–β–D-Glucopyranoside / DDM / LM (Low alpha)]

Chemical Properties:

FW: 510.6 [69227-93-6] $C_{24}H_{46}O_{11}$
CMC (H_2O): ~ 0.17 mM[1] (0.0087%)
CMC (0.2 M NaCl): ~ 0.12 mM[2]
Aggregation number (H_2O): ~ 78-149[1-2]
dn/dc: 0.1435 ml/gm

Product Specifications:

Purity (β + α): ≥ 99% by HPLC analysis
Percent anomer: < 0.2 α (HPLC)
Percent dodecanol: < 0.005 (HPLC)
pH (1% solution in water): 5-8
Solubility in water at 0-5°C: ≥ 20%
Conductance (10% solution in water): < 40 µS
Percent fluorescence due to a 0.1% solution in water at 345 nm: < 10
Absorbance of a 1% solution in water:
340 nm: < 0.02
280 nm: < 0.04
260 nm: < 0.06
225 nm: < 0.1

D310HA **n-Dodecyl–α–D-Maltopyranoside, Anagrade**

[n-Dodecyl–α–D-Maltoside / Lauryl Maltoside / Dodecyl 4-O-α-D-Glucopyranosyl-α-D-Glucopyranoside / DDM / LM (High alpha)]

Chemical Properties:

FW: 510.6 [116183-64-3] $C_{24}H_{46}O_{11}$
CMC (H_2O): ~ 0.152 mM (0.0076%)
Aggregation number (H_2O): ~ 90[1]

Product Specifications:

Purity (β + α): ≥ 99% by HPLC analysis
Percent anomer: > 94 α (HPLC)
Percent dodecanol: < 0.005 (HPLC)
pH (1% solution in water): 5-8
Solubility in water at 0-5°C: ≥ 20%
Conductance (10% solution in water): < 40 µS
Percent fluorescence due to a 0.1% solution in water at 345 nm: < 10
Absorbance of a 1% solution in water:
340 nm: < 0.05
280 nm: < 0.10
260 nm: < 0.15
225 nm: < 0.25

D310T **n-Dodecyl-d25–β–D-Maltopyranoside**

[n-Dodecyl-d25–β–D-Maltoside, Lauryl Maltoside, Tail Deuterated / Lauryl Maltoside / DDM / LM]

Chemical Properties:

FW: 535.8 [849110-74-3] $C_{24}D_{25}H_{21}O_{11}$
CMC (H_2O): ~ 0.2 mM[6]

Product Specifications:

Purity (β + α): ≥ 97% by HPLC analysis
Percent anomer: < 15 α (HPLC)
Percent dodecanol: < 0.05 (HPLC)
pH (1% solution in water): 5-8
Solubility in water at 20°C: ≥ 10%
Conductance (10% solution in water): < 200 µS
Percent fluorescence due to a 0.1% solution in water at 345 nm: < 10
Absorbance of a 1% solution in water:
340 nm: < 0.1
280 nm: < 0.25
260 nm: < 0.25
225 nm: < 0.8

References:

1. VanAken, T., Foxall-VanAken, S., Castleman, S. and Ferguson-Miller, S. (1986) *Methods Enzymol.* **125**, 27-35.
2. Anatrace measurement in collaboration with Professor R. M. Garavito (Michigan State University).
3. Brown, G. M., Dubreuil, P., Ichhaporia, F. M. and Desnoyers, J. E. (1970) *Canadian J. Chem.* **48**, 2525-2531.
4. Measurement obtained in collaboration with Professor Mark Foster (University of Akron) under an experimental services contract.
5. Strop, P. and Brunger, A. T. (2005) *Protein Sci.* **14**, 2207-2211.
6. CMC value for the undeuterated compound.

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