



Detergents

Detergents are also called surfactants or surface-active agents. They are soluble both in aqueous solutions and in non-polar organic solvents and can influence the solubility of other molecules (such as lipids or hydrophobic proteins in buffer solutions).

Detergents are widely used in biochemistry, cell biology or molecular biology. Cell lysis, protein solubilization, protein crystallization or reduction of background staining in blotting experiments are just a few of numerous applications.



Examples of Applications

Purification

- Proteins in Protein Expression, stabilize proteins, study of the conformation and function of proteins
- DNA / RNA, as component of a lysis buffer (lysis of cell nuclei)

Solubilization

- Membranes
- Organelles
- Membrane proteins without denaturing them

Blotting (Proteomics and Electrophoresis)

- Southern
- Western
- Northern
- ELISA, or other immunostaining

Electrophoresis

- Amino acid and protein separation (SDS-PAGE)
- Capillary electrophoresis

Chromatography

- Stein-Moore (amino acid content analysis)

First of all, we present one special detergent. This is **Digitonin**. It is a non-ionic detergent from the group of saponins, isolated from the seeds of *Digitalis purpurea*.

It was reported for extraction of membrane proteins, isolation of mitochondria, permeabilization of cell membranes, Ca²⁺ studies and precipitation of cholesterol. We also offer extracted Saponin from Quillaja Bark.

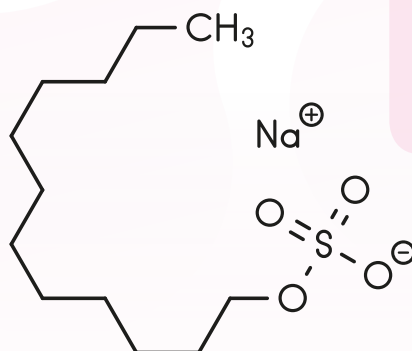


| Product Name | Code | Package |
|----------------------------------|------------|---------|
| Digitonin (Reag. USP) BioChemica | A1905,0500 | 500 mg |
| | A1905,0001 | 1 g |
| | A1905,0005 | 5 g |
| Saponin from Quillaja Bark pure | A2542,0100 | 100 g |
| | A2542,0500 | 500 g |
| | A2542,1000 | 1 kg |

Ionic detergents contain a negatively (anionic detergent) or positively (cationic detergent) charged hydrophilic head group. The hydrophobic part is an alkyl chain (as for SDS, CTAB or alkyl sulfonic acids) or a more complicated steroidal structure as a bile acid salt (like cholate and deoxycholate).

Anionic detergent **Sodium Dodecyl Sulfate (SDS)** is one of the worldwide mostly used detergents in biological research.

SDS breaks the non-covalent bonds in proteins, denaturing them and making them to lose their native configuration.



Sodium dodecyl sulfate

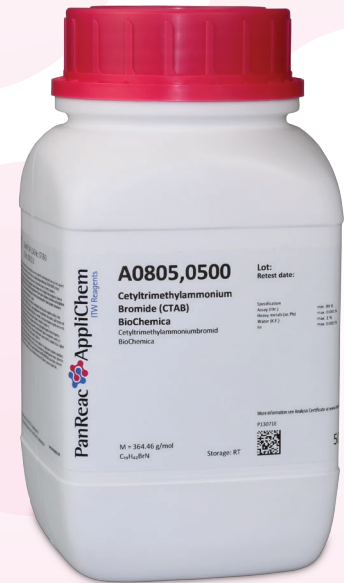
Combined treatment with a disulfide reducing agent (β -mercaptoethanol or dithiothreitol) fully deploys the protein.

The monomeric SDS is strongly bound to most proteins at a ratio of 1.4 mg SDS / mg protein.

| Product name | M (g/mol) | CMC (25 °C) | Code | Package |
|---|-----------|-------------|-------------|---------|
| SDS for analysis, ACS | 288.38 | 8.2 mM | 132363.1207 | 50 g |
| | | | 132363.1209 | 250 g |
| | | | 132363.0914 | 5 kg |
| SDS (USP-NF, BP, Ph. Eur.) pure, pharma grade | 288.38 | 8.2 mM | 142363.1209 | 250 g |
| | | | 142363.1211 | 1000 g |
| | | | 142363.0914 | 5 kg |
| SDS for molecular biology | 288.38 | 8.2 mM | A2263,0100 | 100 g |
| | | | A2263,0500 | 500 g |
| | | | A2263,1000 | 1 kg |
| SDS ultrapure | 288.38 | 8.2 mM | A1112,0100 | 100 g |
| | | | A1112,0500 | 500 g |
| | | | A1112,1000 | 1 kg |
| SDS BioChemica | 288.38 | 8.2 mM | A2572,0250 | 250 g |
| | | | A2572,0500 | 500 g |
| | | | A2572,1000 | 1 kg |
| SDS grained pure | 288.38 | 8.2 mM | A7249,0500 | 500 g |
| | | | A7249,1000 | 1 kg |
| | | | A7249,5000 | 5 kg |
| SDS - Solution 20 % for molecular biology | 288.38 | | A0675,0250 | 250 ml |
| | | | A0675,0500 | 500 ml |
| | | | A0675,1000 | 1 L |
| SDS - Solution 20 % pure | 288.38 | | A3942,1000 | 1 L |
| SDS - Solution 10 % for molecular biology | 288.38 | | A0676,0250 | 250 ml |
| | | | A0676,0500 | 500 ml |
| | | | A0676,1000 | 1 L |
| SDS - Solution 10 % pure | 288.38 | | A3950,1000 | 1 L |
| SDS 0.004 mol/l volumetric solution | 288.38 | | 182792.1211 | 1 L |
| SDS-Tris-Glycine buffer (10X) BioChemica | | | A1415,1000 | 1 L |

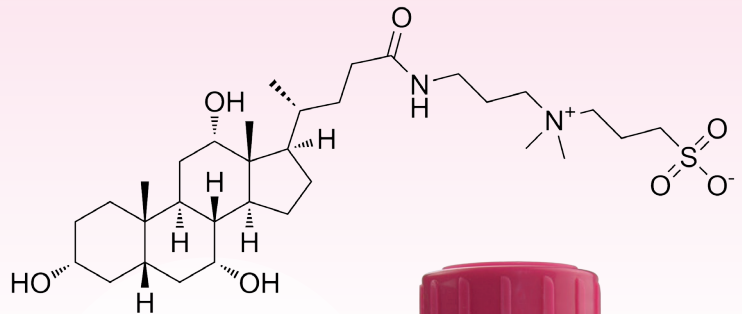
Cetyltrimethylammonium Bromide (CTAB) is a cationic detergent. In biochemistry it is mainly used in DNA extraction, especially of plants, in chromatography, in CTAB-Page and many more applications of chemical procedures and conservation.

| Product name | M (g/mol) | CMC (25 °C) | Code | Package |
|--|-----------|-------------|------------|---------|
| Cetyltrimethylammonium Bromide for molecular biology | 364.46 | 0.92 mM | A6284,0100 | 100 g |
| | | | A6284,0500 | 500 g |
| Cetyltrimethylammonium Bromide BioChemica | 364.46 | 0.92 mM | A0805,0100 | 100 g |
| | | | A0805,0500 | 500 g |



Zwitterionic detergents like **CHAPS** or sulfobetaine, combine the features of ionic and non-ionic detergents. Like non-ionic detergents they have no net charge. Consequently they show no electrophoretic mobility and do not bind to ion-exchange resins. Compared to ionic detergents, their CMC values are less sensitive to changes in ion concentration, but they have in common to break protein-protein interactions efficiently (denaturing effect).

The detergent CHAPS is a derivative of cholate; suitable for experiments that require functional proteins in their native state. Easy to remove by dialysis.



| Product name | M (g/mol) | CMC (25 °C) | Code | Package |
|------------------|-----------|--------------|------------|---------|
| CHAPS BioChemica | 614.89 | 4.2 – 6.3 mM | A1099,0005 | 5 g |
| | | | A1099,0025 | 25 g |
| | | | A1099,0050 | 50 g |





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Non-ionic detergents have uncharged hydrophilic head groups. The CMC value and micellar size of this group of detergents is mainly affected by temperature (the higher the temperature, the higher the CMC), not by ion strength.

Non-ionic detergents are generally non-denaturing and are therefore first choice for applications that require preservation of protein structure and activity. They are mild detergents that primarily break lipid-lipid and lipid-protein interactions, while protein-protein interactions stay unaffected. Especially alkyl glycosides and maltosides are suitable for isolation of biologically active membrane proteins. The advantages over polyoxyethylene detergents are e.g. homogeneity in composition and structure (many polyoxyethylenes are composed of several homologues) and a lack of absorbance at 280 nm.

| Product name | M (g/mol) | CMC (25 °C) | Code | Package |
|--|-----------|----------------|-------------|---------|
| Brij® 35 aqueous solution 30% w/v for clinical diagnosis | | 0.092 mM | 252317.1611 | 1 L |
| Brij® 35 solution 10 % peroxide-free | | 0.092 mM | A1286,0100 | 100 ml |
| n-Dodecyl-β-D-Maltoside BioChemica | 510.63 | 0.15 - 0.19 mM | A0819,0001 | 1 g |
| | | | A0819,0005 | 5 g |
| n-Octyl-β-D-Glucopyranoside BioChemica | 292.38 | 25 - 30 mM | A1010,0010 | 10 g |
| | | | A1010,0025 | 25 g |
| | | | A1010,0100 | 100 g |
| n-Octyl-β-D-Glucopyranoside pure | 292.38 | 25 - 30 mM | Z46373.1211 | 1 kg |
| Pluronic® F-68 BioChemica | | ~8400 | A1288,0100 | 100 g |
| | | | A1288,0500 | 500 g |
| Triton® X 100 for molecular biology | 646.85 | 0.3 mM | A4975,0100 | 100 ml |
| | | | A4975,0500 | 500 ml |
| | | | A4975,1000 | 1 L |
| Triton® X-100 solution 10 % peroxide-free | | | A1287,0100 | 100 ml |
| Tween® 80 BioChemica | 1310 | 0.012 mM | A1390,0500 | 500 ml |
| | | | A1390,1000 | 1 L |
| Tween® 80 (USP-NF, BP, Ph. Eur.) pure, pharma grade | | | 142050.1611 | 1000 ml |
| | | | 142050.1214 | 5 L |
| Tween® 20 for molecular biology | 1227.72 | 0.059 mM | A4974,0100 | 100 ml |
| | | | A4974,0250 | 250 ml |
| | | | A4974,0500 | 500 ml |
| | | | A4974,1000 | 1 L |
| Tween® 20 (USP-NF, BP, Ph. Eur.) pure, pharma grade | | | 142312.1611 | 1 L |
| | | | 142312.1214 | 5 L |
| Tween® 20 solution 10 % peroxide-free | | | A1284,0100 | 100 ml |

All our prices on our website are recommended list prices, for larger quantities and special offers contact our sales department or distribution partners.

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