

Dow Surfactants

Reference Chart

DOW

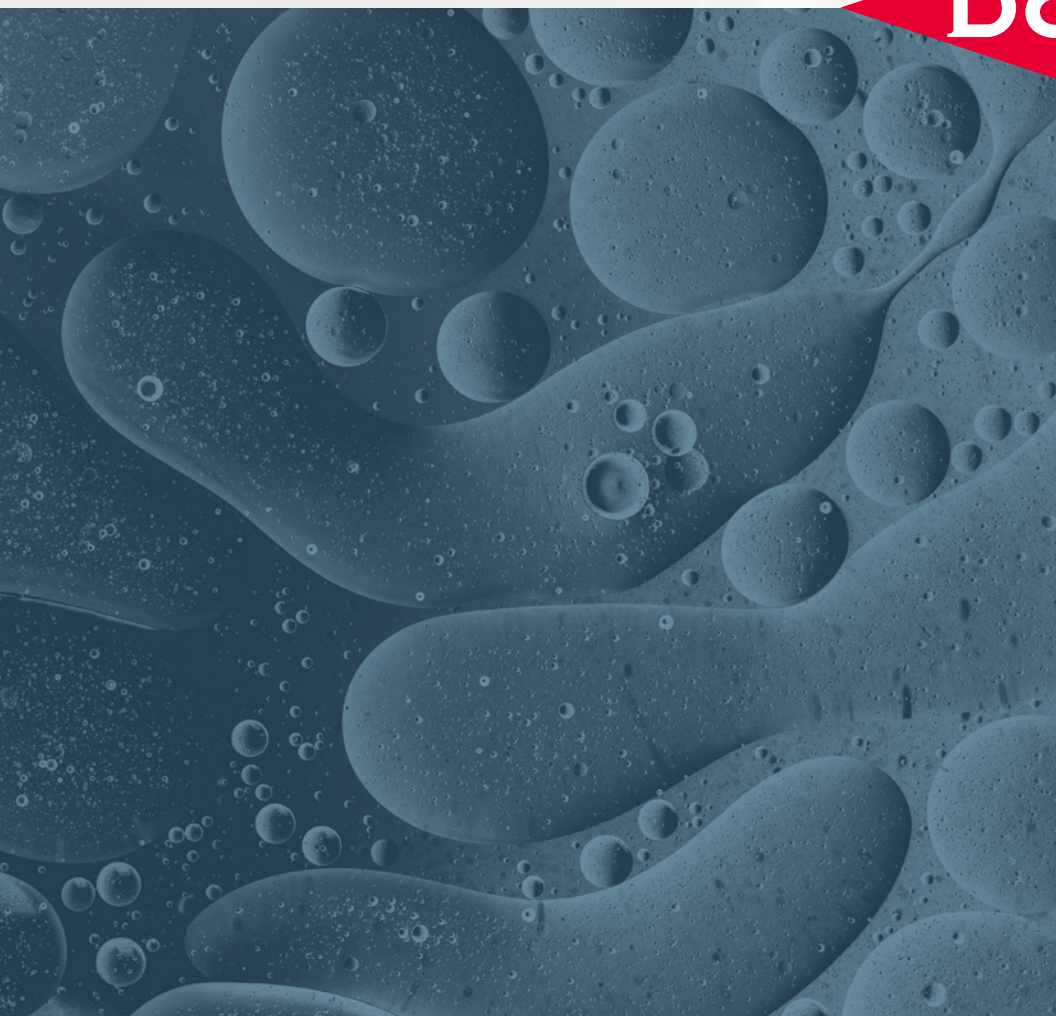


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A broad range of nonionic and anionic products

Including...

DOWFAX™ Anionic Surfactants
ECOSURF™ Nonionic Surfactants

TERGITOL™ Nonionic Surfactants
TRITON™ Anionic and Nonionic Surfactants



Dow surfactants include some of the most familiar anionic and nonionic products in the industry, known worldwide for excellent emulsification and dispersion. They increase the cleaning and wetting properties of household, industrial and institutional cleaning products. Dow surfactants are also used by formulators of paints, coatings and inks for pigment wetting, film leveling and pigment and dye stabilization.

Dow surfactants contribute desired mechanical properties and storage stability to emulsion polymerization systems, including styrene-butadiene, vinyl, acrylic and other copolymer latex resin systems. They are also broadly used in agricultural formulations, textile processing, paper manufacturing and oilfield operations.

An overview of Dow surfactants

This brochure provides an overview for Dow nonionic, anionic, and low foam surfactant products. Included are products which are:

Readily biodegradable

*Readily biodegradable as defined in OECD Guidelines for the Testing of Chemicals, Section 3 (Rev. 23 March 2006)

CleanGredients™

CleanGredients™ is a database of chemical ingredients used primarily to formulate residential, institutional, industrial and janitorial cleaning products that have been pre-approved to meet the U.S. EPA's Safer Choice Standard.

EPA inerts list

Dow produces surfactants that act as emulsifiers, dispersants, wetting agents for crop protection and antimicrobial products. These surfactants can be used as Inert Ingredients in pesticide and antimicrobial formulations under EPA Inert Regulations. See the EPA website for specific EPA Status <https://iaspub.epa.gov/apex/pesticides/f?p=inertfinder:mixtures>.

We invite you to review the product features, physical and performance properties and application information for more detail.

Total support capabilities

Our investments in surfactant products and technology create one of the strongest capability platforms in the industry while providing sustainable and safer product alternatives.


















Dow is your collaborative source for solutions. We will work closely with you to find innovative, more sustainable answers to address all of your surfactant requirements.

For your convenience, we offer a comprehensive library of starting formulations and technical information at **www.dowsurfactants.com**. Information is frequently updated to meet the latest requirements for formulation performance and sustainability.

With Dow surfactants, you also receive...

- A wide range of chemistries
- Extensive applications expertise
- The knowledge and resources to innovate
- Expertise and awareness of current regulations and legislation
- A global sales, distribution and technical support network
- Global supply from world-class manufacturing facilities
- The strength and stability of Dow for confidence and peace of mind

Nonionic surfactants

| Product | Product highlights | APE based ¹ | Cloud point ² | HLB ³ | Moles EO | CMC ⁴ / Surface tension ⁵ | Foam height ⁶ | Pour point ⁷ | Form ⁸ | Features | Applications |
|--|---|------------------------|--------------------------|------------------|----------|---|--------------------------|-------------------------|-------------------|---|---|
| ECOSURF™ EH Specialty Ethoxylates ECOSURF™ EH Series Nonionic Surfactants are a new generation of high-performance, readily biodegradable specialty surfactants that provide performance comparable to alkylphenol ethoxylate (APE) surfactants, and better than primary alcohol ethoxylate (PAE) surfactants in many applications, including hard surface cleaning, textile processing, and any application in which excellent wetting performance is required. | | | | | | | | | | | |
| ECOSURF™ EH-3 |    | No | Disp | 7.9 | PRT | 480/30 | 0/0 | -21 | L | Excellent oil-soluble emulsifier, low foam, low odor, good handling, very low aquatic toxicity, listed on CleanGredients™ for US EPA Safer Choice Formulations | Cleaners and degreasers, textiles, agrochemicals |
| ECOSURF™ EH-6 |    | No | 40 | 10.8 | PRT | 914/30 | 20/0 | 5 | L | Exceptional wetting and hard surface cleaning, low odor, excellent handling and formulation properties, very low aquatic toxicity, listed on CleanGredients™ for US EPA Safer Choice Formulations | Concentrates, cleaners and detergents, paints and coatings, textile processing, agrochemicals |
| ECOSURF™ EH-9 |    | No | 61 | 12.5 | PRT | 1066/31 | 60/0 | 16 | L | Exceptional wetting and hard surface cleaning, low odor, excellent formulation properties, very low aquatic toxicity, Listed on CleanGredients™ for US EPA Safer Choice Formulations | Concentrates, cleaners and detergents, paints coatings, textile processing, agrochemicals |
| ECOSURF™ EH-9 (90%) |    | No | 61 | 12.5 | PRT | 1066/31 | 60/0 | -5 | L | Exceptional wetting and hard surface cleaning, low odor, improved handling and formulation properties, very low aquatic toxicity, listed on CleanGredients™ for US EPA Safer Choice Formulations | Concentrates, cleaners and detergents, prewash spotters, paints and coatings, textile processing, agrochemicals |
| ECOSURF™ EH-14 (90%) |    | No | 86 | 14 | PRT | 4018/32 | 70/10 | 6 | L | Exceptional wetting and hard surface cleaning, low odor, improved handling and formulation properties, very low aquatic toxicity, listed on CleanGredients™ for US EPA Safer Choice Formulations | Concentrates, cleaners and detergents, prewash spotters, paints and coatings, textile processing, agrochemicals |
| ECOSURF™ EH-40 (75%) |   | No | >100 | 18.0 | PRT | 8454/46 | 100/45 | 3 | L | Excellent emulsion stabilizer, low odor, improved handling and very low aquatic toxicity | Emulsion polymerization, paints and coatings, agrochemicals, floor polish and wax emulsions |

 Readily biodegradable  CleanGredients™  EPA inerts list

ECOSURF™ products are sold under trade name TERGITOL™ in Canada and Japan.

Footnotes:

¹APE = Alkyl phenol ethoxylate

²Cloud point: °C, 1 wt% actives aqueous solution

³HLB range: <10 w/o emulsifier, >10 o/w emulsifier, 10-15 good wetting, 12-15 detergents

⁴Critical micelle concentration: ppm at 25°C

⁵Surface tension: dynes/cm at 1% actives, 25°C

⁶Ross-Miles foam height: mm at 0.1 wt% actives, 25°C, initial / 5 minute

⁷Pour point: °C

⁸Form at 25°C: L = Liquid, S = Solid

MWF= Metalworking fluids

























Ins = Insoluble

Disp = Dispersible












PRT = Proprietary



Nonionic surfactants

| Product | Product highlights | APE based ¹ | Cloud point ² | HLB ³ | Moles EO | CMC ⁴ / surface tension ⁵ | Foam height ⁶ | Pour point ⁷ | Form ⁸ | Features | Applications |
|---|--|------------------------|--------------------------|------------------|----------|---|--------------------------|-------------------------|-------------------|--|--|
| TERGITOL™ 15-S Secondary Alcohol Ethoxylates TERGITOL™ 15-S Nonionic Surfactants are versatile, high performance Secondary Alcohol Ethoxylates (SAEs) that provide an unbeatable combination of performance and cost when used in place of Primary Alcohol Ethoxylates (PAEs), Nonylphenol Ethoxylates (NPEs), Octylphenol Ethoxylates (OPEs), and other general purpose surfactants in a wide range of formulating applications. | | | | | | | | | | | |
| TERGITOL™ 15-S-3 |   | No | Insoluble | 8.0 | 3 | Ins | Ins | -46 | L | Excellent hydrocarbon compatibility and detergency | Defoamers, textile, pulp/paper, prewash spot removers, agrochemicals, dry cleaners |
| TERGITOL™ 15-S-5 |   | No | Dispersible | 10.5 | 5 | Disp | Disp | -25 | L | Excellent emulsifier and detergent, enhances paint associative thickener efficiency, aids in rinseability of solvent-based systems | Paints and coatings, cleaners, prewash spot removers, agrochemicals, dry cleaners, textile, oilfield |
| TERGITOL™ 15-S-7 |   | No | 37 | 12.1 | 7 | 38/30 | 117/28 | 1 | L | Excellent wetting and rinseability, excellent formulation and handling properties | Paints and coatings, cleaners, prewash spot removers, agrochemicals, textile, pulp/paper, oilfield |
| TERGITOL™ 15-S-9 |    | No | 60 | 13.3 | 9 | 52/30 | 124/43 | 9 | L | Excellent detergency, rapid dissolution and good rinseability, low odor, excellent formulation and handling properties, listed on CleanGredients™ for US EPA Safer Choice Formulations | High performance cleaners, paints and coatings, agrochemicals, textile, pulp/paper, oilfield |
| TERGITOL™ 15-S-12 |    | No | 89 | 14.5 | 12 | 104/33 | 124/43 | 22 | S | Excellent detergent and dispersant, good handling properties, higher temperature wetting, listed on CleanGredients™ for US EPA Safer Choice Formulations | Agrochemicals, dispersions, high temperature systems |
| TERGITOL™ 15-S-12 (90%) |    | No | 89 | 14.5 | 12 | 107/34 | 130/28 | -8 | L | Excellent detergent and dispersant, good handling properties, higher temperature wetting, listed on CleanGredients™ for US EPA Safer Choice Formulations | Agrochemicals, dispersions, high temperature systems |
| TERGITOL™ 15-S-15 |    | No | >100 | 15.4 | 15 | 162/36 | 126/24 | 29 | S | High HLB emulsifier and dispersant, provides freeze thaw and ionic stability, listed on CleanGredients™ for US EPA Safer Choice Formulations | Emulsion polymerization, paper and textile processing, solid cleaners |
| TERGITOL™ 15-S-20 |   | No | >100 | 16.3 | 20 | 315/38 | 112/42 | 35 | S | Excellent emulsion stabilizer with low reactor residue, provides freeze thaw and ionic stability, good handling properties | Emulsion polymerization, paper and textile processing, solid cleaners |
| TERGITOL™ 15-S-20 (80%) |   | No | >100 | 16.3 | 20 | 315/38 | 112/42 | 6 | L | Excellent emulsion stabilizer with low reactor residue, provides freeze thaw and ionic stability, good handling properties | Emulsion polymerization, paints and coatings, floor polish and wax emulsions |
| TERGITOL™ 15-S-30 |   | No | >100 | 17.4 | 31 | 558/43 | 115/30 | 39 | S | Excellent emulsion stabilizer with low reactor residue, provides freeze thaw and ionic stability | Emulsion polymerization, paints and coatings, floor polish and wax emulsions |
| TERGITOL™ 15-S-40 |   | No | >100 | 18.0 | 41 | 783/44 | 110/24 | 43 | S | Emulsion stabilizer, provides freeze thaw and ionic stability, good handling properties | Emulsion polymerization, paint and coatings, floor polish and wax emulsions |
| TERGITOL™ 15-S-40 (70%) |   | No | >100 | 18.0 | 41 | 1314/45 | 103/28 | 5 | L | Emulsion stabilizer, provides freeze thaw and ionic stability, good handling properties | Emulsion polymerization, paint and coatings, floor polish and wax emulsions |

Nonionic surfactants

| Product | Product highlights | APE based ¹ | Cloud point ² | HLB ³ | Moles EO | CMC ⁴ / surface tension ⁵ | Foam height ⁶ | Pour point ⁷ | Form ⁸ | Features | Applications |
|---|---|------------------------|--------------------------|------------------|----------|---|--------------------------|-------------------------|-------------------|--|---|
| TERGITOL™ Ethylene Oxide/Propylene Oxide (EO/PO) Copolymers High-performance, nonionic surfactants for defoaming, wetting and emulsifying. TERGITOL™ Surfactants deliver low foam, excellent solvency, chemical stability and reliable formulation performance in a number of fermentation, food processing, metalworking and other applications. | | | | | | | | | | | |
| Polyglycol EP-436 |  | No | 18 | - | PRT | 1886/35 | Ins | -39 | L | Foam control agent, wetting agent and dispersant | Foam control, food processing, paper processing and chemical intermediates. |
| TERGITOL™ L-61 |  | No | 24 | 3 | PRT | -/40 | 0/0 | -32 | L | Efficient foam control, wetting agent. AOF (Antioxidant free) version is listed on CleanGredients™ and approved for US EPA Safer Choice formulations | Foam control for fermentation, food washing, water treatment, MWF, machine dishwash, food and dairy process cleaning, agrochemicals |
| TERGITOL™ L-62 |  | No | 32 | 7 | PRT | -/41 | 45/30 | -2 | L | Efficient foam control agent, wetting agent | Foam control for fermentation, MWF, machine dishwash, food and dairy process cleaning, paints and coatings, agrochemicals |
| TERGITOL™ L-64 |  | No | 62 | 15 | PRT | -/44 | 48/18 | 7 | L | Higher temperature foam control, good detergency | Fermentation, food processing, adhesives, paper processing, MWF, sanitizing solutions |
| TERGITOL™ L-81 |  | No | 20 | 2 | PRT | -/36 | Disp | -20 | L | Low temperature foam control | Fermentation, MWF, chemical intermediates |
| TERGITOL™ L-101 |  | No | 18 | 1 | PRT | -/33 | 30/25 | -24 | L | Low temperature foam control | Fermentation processes, MWF |
| TERGITOL™ P-104 |  | No | 80 | 13.0 | PRT | -/33 | 96/71 | 32 | S | Excellent detergent and emulsifier agent, effective steric stabilizer and wetting agent | Agrochemicals, iodophors and high temperature systems |
| TERGITOL™ P-105 |  | No | 90 | 13.8 | PRT | -/39 | 99/84 | 45 | S | Excellent detergent and emulsifier agent, effective steric stabilizer and wetting agent | Agrochemicals, high temperature systems |
| TERGITOL™ 25R2 |  | No | 31 | - | PRT | 12/38 | 40/12 | -40 | L | Foam control agent, wetting agent and dispersant | Foam control, MWF, household cleaning, water treatment, agrochemicals, chemical intermediates and paper processing |
| TERGITOL™ 17R2 |  | No | 35 | - | PRT | 29/45 | 30/0 | -43 | L | Foam control agent, wetting agent and dispersant | Foam control, MWF, household and industrial cleaning, paints and coatings, agrochemicals, chemical intermediates and paper processing |
| TERGITOL™ 17R4 |  | No | 45 | - | PRT | 56/44 | 0/0 | 0 | L | Foam control agent, wetting agent and dispersant | Foam control, MWF, household and industrial cleaning, paints and coatings, agrochemicals, chemical intermediates and paper processing |
| TERGITOL™ HB-5100 | - | No | 50 | 10 | PRT | - | - | -29 | L | Low foaming, high chemical and thermal stability, easily rinsed from surfaces | Fermentation processing, textile processing, paints and coatings, metal cleaners, agrochemicals |

 Readily biodegradable  CleanGredients™  EPA inerts list

Footnotes:

¹APE = Alkyl phenol ethoxylate

²Cloud point: °C, 1 wt% actives aqueous solution

³HLB range: <10 w/o emulsifier, >10 o/w emulsifier, 10-15 good wetting, 12-15 detergents

⁴Critical micelle concentration: ppm at 25°C

⁵Surface tension: dynes/cm at 1% actives, 25°C

⁶Ross-Miles foam height: mm at 0.1 wt% actives, 25°C, initial / 5 minute

⁷Pour point: °C

⁸Form at 25°C: L = Liquid, S = Solid











MWF= Metalworking fluids

Ins = Insoluble

Disp = Dispersible

PRT = Proprietary

Nonionic surfactants

| Product | Product highlights | APE based ¹ | Cloud point ² | HLB ³ | Moles EO | CMC ⁴ / surface tension ⁵ | Foam height ⁶ | Pour point ⁷ | Form ⁸ | Features | Applications |
|--|---|------------------------|--------------------------|------------------|----------|---|--------------------------|-------------------------|-------------------|---|---|
| TERGITOL™ X Ethylene Oxide/Propylene Oxide (EO/PO) Copolymers TERGITOL™ X Surfactants are versatile nonionic specialty surfactants that provide excellent stabilizer and dispersant performance for aqueous systems. They are used in conjunction with other surfactants to provide stability and freeze-thaw resistance to emulsions, dispersions, and emulsion polymer systems. They can also provide lubricity for fibers and solubilization of iodine for germicidal cleaners. | | | | | | | | | | | |
| TERGITOL™ XD |  | No | 74 | - | PRT | -/38 | 60/25 | 34 | S | Excellent steric and freeze thaw stabilizer, effective pigment and carbon black dispersant | Agrochemicals, paints and coatings dispersions, iodophors, emulsion polymerization |
| TERGITOL™ XDLW |  | No | 74 | - | PRT | -/32 | 100/45 | 15 | L | Excellent steric and freeze thaw stabilizer, effective pigment and carbon black dispersant | Agrochemicals, paints and coatings dispersions, iodophors, emulsion polymerization |
| TERGITOL™ XH |  | No | 95 | - | PRT | -/41 | 80/40 | 40 | S | Provides lubricity, effective steric and freeze thaw stabilizer, solubilizes iodine | Fiber lubricants, emulsion polymerization, iodophors, agrochemicals |
| TERGITOL™ XJ |  | No | 49 | - | PRT | -/36 | 53/13 | 27 | S | Excellent emulsifier for aromatic and chlorinated solvents, steric and freeze thaw stabilizer | Emulsion and dispersion systems, emulsion polymerization, agrochemicals |
| TERGITOL™ TMN Branched Secondary Alcohol Ethoxylates TERGITOL™ TMN Series surfactants are highly effective nonionic wetting agents having low aqueous dynamic and equilibrium surface profiles. They offer excellent performance in cleaners, emulsification polymerization, and paints and coatings applications. | | | | | | | | | | | |
| TERGITOL™ TMN-3 |  | No | Ins | 8.1 | 3 | Ins | Ins | -49 | L | Excellent oil soluble emulsifier, hydrocarbon compatibility | Low HLB emulsifier for textiles and paper applications, degreasers |
| TERGITOL™ TMN-6 (90%) |  | No | 36 | 13.1 | 8 | 800/27 | 130/22 | <-40 | L | Excellent wetting agent, penetrant and dispersant, silicone emulsifier, narrow gel range | Paper and textile processing, pigment and wax/resin dispersants, hard surface cleaners, agrochemicals, paints and coatings |
| TERGITOL™ TMN-100X (90%) |  | No | 65 | 14.0 | 9 | 830/27 | 150/24 | -6 | L | Non-APE alternative for TRITON™ X-100, excellent wetting, penetrant and dispersant, superior emulsification | Paints and coatings, paper & textile processing pigment and wax/resin dispersants, cleaners |
| TERGITOL™ TMN-10 (90%) |  | No | 76 | 14.4 | 11 | 1313/30 | 118/28 | -19 | L | High temperature penetrant and dispersant, high HLB emulsifier, narrow gel range | Paper and textile processing, pigment and wax/resin dispersants, cleaners, paints and coatings |
| TRITON™ Specialty Alkoxylates These TRITON™ surfactants are used as emulsifiers, wetting agents or detergents in applications including paints and coatings, agrochemicals, paper and textile processing, emulsification systems, household and industrial cleaning and oilfield chemicals. | | | | | | | | | | | |
| TRITON™ N-57 |  | Yes | Disp | 10.0 | 5 | -/31 | 18/12 | -28 | L | Emulsifier, enhance associative thickener efficiency, improves colorant acceptance | Pigment wetting agent and stabilizer, defoamer, paints and coatings, MWF, agrochemicals |
| TRITON™ HW 1000 |  | No | Ins | 10.8 | 5 | Ins | Ins | -18 | L | Non-silicone-based, superior wetting and leveling agent, low foaming, wets various substrates, improves gloss and smoothness of coating films, penetrant and rapid pigment dispersant, narrow gel range | Inks and printing, waterborne and laminate adhesives, coatings, paints, paper & textile processing, pigment and wax/resin dispersion, agrochemicals |

 Readily biodegradable  CleanGredients™  EPA inerts list

Footnotes:

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


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Nonionic surfactants

| Product | Product highlights | APE based ¹ | Cloud point ² | HLB ³ | Moles EO | CMC ⁴ / surface tension ⁵ | Foam height ⁶ | Pour point ⁷ | Form ⁸ | Features | Applications |
|---|---|------------------------|--------------------------|------------------|----------|---|--------------------------|-------------------------|-------------------|---|---|
| TERGITOL™ NP Nonylphenol Ethoxylates TERGITOL™ NP Series Surfactants cover a wide range of ethoxylation and HLB values. They are used as emulsifiers, wetting agents and dispersants in a variety of applications, including emulsion polymerization, cleaning applications, and paints and coatings. | | | | | | | | | | | |
| TERGITOL™ NP-4 |  | Yes | Ins | 8.9 | 4 | Ins | Ins | -28 | L | Excellent oil-soluble surfactant, low HLB emulsifier | Cleaners and degreasers, dry cleaning, dispersant for petroleum oil |
| TERGITOL™ NP-6 |  | Yes | Ins | 10.9 | 6 | Ins | Ins | -26 | L | Excellent emulsifier, wetting agent, stabilizer, couples detergent range nonionics into hydrocarbon systems | Cleaners and degreasers, dry cleaning, adhesives, agrochemicals |
| TERGITOL™ NP-7 |  | Yes | 20 | 12.0 | 7 | 39/32 | 20/19 | -19 | L | Excellent detergency, outstanding wetting | Cleaners and degreasers, paper and textile processing, prewash spotters, agrochemicals, MWF, oilfield chemicals |
| TERGITOL™ NP-8 |  | Yes | 43 | 12.6 | 8 | 61/32 | 103/95 | -6 | L | Excellent detergency, outstanding wetting, good rinseability | Cleaners and detergents, paper and textile processing, paints and coatings, agrochemicals, MWF |
| TERGITOL™ NP-9 |  | Yes | 54 | 12.9 | 9 | 60/32 | 105/90 | -1 | L | Excellent detergency, outstanding wetting, good rinseability | Cleaners and detergents, paper and textile processing, laundry, paints and coatings, dust control, agrochemicals, MWF |
| TERGITOL™ NP-9.5 |  | Yes | 59 | 13.1 | 9.5 | 62/32 | 115/102 | 7 | L | Excellent detergency, outstanding wetting | Cleaners and detergents, paper and textile processing, paints and coatings, agrochemicals, MWF |
| TERGITOL™ NP-10 |  | Yes | 63 | 13.2 | 10 | 55/33 | 115/110 | 6 | L | Excellent detergency, outstanding wetting | Cleaners and detergents, paper and textile processing, paints and coatings, agrochemicals, MWF |
| TERGITOL™ NP-11 |  | Yes | 72 | 13.5 | 11 | 71/34 | 112/92 | 11 | L | Excellent detergency, outstanding wetting | Cleaners and detergents, paper and textile processing, paints and coatings, agrochemicals, MWF |
| TERGITOL™ NP-12 |  | Yes | 78 | 13.8 | 12 | 85/35 | 117/115 | 13 | L | Excellent detergency, outstanding wetting | Cleaners and detergents, paper and textile processing, paints and coatings, agrochemicals, MWF |
| TERGITOL™ NP-13 |  | Yes | 82 | 13.9 | 13 | 66/35 | 118/97 | 14 | L | Excellent detergency, outstanding wetting | Cleaners and detergents, paper and textile processing, paints and coatings, agrochemicals, MWF |
| TERGITOL™ NP-15 | - | Yes | >100 | 15.0 | 15 | 90/41 | 128/95 | 25 | S | Excellent detergency, outstanding wetting, suitable for higher temperatures | Cleaners and detergents, paper and textile processing, paints and coatings, agrochemicals, MWF |
| TERGITOL™ NP-30 |  | Yes | >100 | 17.1 | 30 | 157/46 | 125/77 | 37 | S | Highly water soluble emulsifier and stabilizer, effective at high temperatures | Wetting agents and stabilizers, emulsifiers and dispersants, agrochemicals |
| TERGITOL™ NP-30 (70%) |  | Yes | >100 | 17.1 | 30 | 160/42 | 125/77 | -8 | L | Highly water soluble emulsifier and stabilizer, effective at high temperatures | Wetting agents and stabilizers, emulsifiers and dispersants, agrochemicals |
| TERGITOL™ NP-40 |  | Yes | >100 | 17.8 | 40 | 230/50 | 123/115 | 48 | S | Effective at high temperatures, highly water-soluble emulsifier and stabilizer, wetting | Paper and textile processing, paints and coatings, agrochemicals |
| TERGITOL™ NP-40 (70%) |  | Yes | >100 | 17.8 | 40 | 232/50 | 123/115 | 2 | L | Effective at high temperatures, highly water-soluble emulsifier and stabilizer | Paper and textile processing, paints and coatings, agrochemicals |
| TERGITOL™ NP-50 (70%) |  | Yes | >100 | 18.2 | 50 | 256/53 | 115/110 | 2 | S/L | Effective at high temperatures, highly water-soluble emulsifier and stabilizer | Paper and textile processing, paints and coatings, agrochemicals |
| TERGITOL™ NP-55 (70%) | - | Yes | >100 | 18.3 | 55 | 39/45 | 105/60 | 15 | S/L | Effective at high temperatures, highly water-soluble emulsifier and stabilizer | Paper and textile processing, paints and coatings, agrochemicals |
| TERGITOL™ NP-70 (70%) |  | Yes | >100 | 18.7 | 70 | 287/51 | 105/100 | 15 | S | Effective at high temperatures, highly water-soluble emulsifier and stabilizer | Paper and textile processing, paints and coatings, agrochemicals |

Nonionic surfactants

| Product | Product highlights | APE based ¹ | Cloud point ² | HLB ³ | Moles EO | CMC ⁴ / surface tension ⁵ | Foam height ⁶ | Pour point ⁷ | Form ⁸ | Features | Applications |
|--|---|------------------------|--------------------------|------------------|----------|---|--------------------------|-------------------------|-------------------|--|--|
| TRITON™ RW Amine Ethoxylates TRITON™ RW Series Surfactants offer unique reversible surfactancy, allowing for easier separation of emulsified oils from aqueous waste streams. They are especially well-suited for industrial laundry applications and deliver exceptional metal cleaning performance. | | | | | | | | | | | |
| TRITON™ RW-20 | - | No | Ins | 6-8 | 2 | Ins | Ins | < -6 | L | Oil soluble emulsifier, pH reversible | Degreasers, MWF |
| TRITON™ RW-50 | - | No | Disp | 12-14 | 5 | 260/29 pH=12 -/51 pH=2 | 28/2 pH=12 | < -6 | L | Low HLB emulsifier, pH reversible | Metal cleaners, industrial laundry, transportation cleaners, MWF |
| TRITON™ RW-150 | - | No | >100 | >16 | 15 | 860/30 pH=12 -/54 pH=2 | 135/15 pH=12 | 11 | L | pH reversible properties and emulsification | High temperature systems |
| TRITON™ X Octylphenol Ethoxylates TRITON X Series surfactants are versatile nonionic specialty surfactants that cover a wide range of ethoxylation and HLB values. They are used as emulsifiers, wetting agents and dispersants in a variety of applications, including emulsion polymerization, cleaning applications, and paints and coatings. | | | | | | | | | | | |
| TRITON™ X-15 |  | Yes | Ins | 4.9 | 1.5 | Ins | Ins | 3 | L | Oil soluble emulsifier, solubilizer | Defoamers, dye solubilizer, chemical intermediate |
| TRITON™ X-35 |  | Yes | Ins | 7.8 | 3 | Ins | Ins | -9 | L | Excellent compatibility with aliphatic or aromatic hydrocarbons and polar organic solvents | Defoamers, pulp/paper, textile, dry cleaning, MWF, chemical intermediate |
| TRITON™ X-45 |  | Yes | Disp | 9.8 | 4.5 | 136/29 | 23/9 | -24 | L | Excellent emulsifier with good wetting, aids in rinseability of solvent-based systems | Defoamers, cleaners, MWF, agrochemicals, paints and coatings, textile, pulp/paper, oilfield |
| TRITON™ X-114 |  | Yes | 25 | 12.3 | 7.5 | 120/31 | 55/40 | -14 | L | Excellent wetting and detergency | Cleaners, paints and coatings, pulp/paper, textile, agrochemicals, MWF, oilfield |
| TRITON™ X-100 |  | Yes | 66 | 13.4 | 9.5 | 189/33 | 128/107 | 1 | L | Excellent detergent, dispersant, and emulsifier for oil-in-water systems | Household and industrial cleaners, paints and coatings pulp/paper, textile, agrochemicals, MWF, oilfield |
| TRITON™ X-102 |  | Yes | 88 | 14.4 | 12 | 267/36 | 124/75 | 13 | L | Excellent detergent and dispersant | Dispersions, high temperature systems |
| TRITON™ X-165 (50%) |  | Yes | >100 | 15.5 | 16 | not run/40 | 115/45 | 2 | L | Excellent emulsion stabilizer and dispersant | Paints and coatings, dispersions |
| TRITON™ X-165 (70%) |  | Yes | >100 | 15.5 | 16 | 570/39 | 124/68 | 22 | L | Excellent emulsion stabilizer and dispersant | Paints and coatings, dispersions |
| TRITON™ X-305 (70%) |  | Yes | >100 | 17.3 | 30 | 1916/49 | 103/25 | -7 | L | Excellent emulsion stabilizer, provides freeze thaw and ionic stability | Emulsion polymerization, paints and coatings, floor polish, wax emulsions |
| TRITON™ X-405 (70%) |  | Yes | >100 | 17.6 | 35 | 2442/52 | 93/22 | -6 | L | Excellent emulsion stabilizer, provides freeze thaw and ionic stability | Emulsion polymerization, paints and coatings, floor polish, and wax emulsions |
| TRITON™ X-705 (70%) |  | Yes | >100 | 18.4 | 55 | 3585/44 | 80/55 | 2 | L | Excellent emulsion stabilizer | Emulsion polymerization |

 Readily biodegradable  CleanGredients™  EPA inerts list

Footnotes:

¹APE = Alkyl phenol ethoxylate

²Cloud point: °C, 1 wt% actives aqueous solution

³HLB range: <10 w/o emulsifier, >10 o/w emulsifier, 10-15 good wetting, 12-15 detergents

⁴Critical micelle concentration: ppm at 25°C

⁵Surface tension: dynes/cm at 1% actives, 25°C

⁶Ross-Miles foam height: mm at 0.1 wt% actives, 25°C, initial / 5 minute

⁷Pour point: °C

⁸Form at 25°C: L = Liquid, S = Solid

















MWF= Metalworking fluids

Ins = Insoluble

Disp = Dispersible

PRT = Proprietary

Bio-based nonionic surfactants

| Product | Product highlights | APE based ¹ | Cloud point ² | HLB ³ | Moles EO | CMC ⁴ / surface tension ⁵ | Foam height ⁶ | Pour point ⁷ | Form ⁸ | Features | Applications |
|--|---|------------------------|--------------------------|------------------|----------|---|--------------------------|-------------------------|-------------------|--|---|
| ECOSURF™ SA Seed Oil Surfactants ECOSURF™ SA Series Nonionic Surfactants are a new generation of patent pending, biodegradable nonionic surfactants based on seed oil based materials. These surfactants offer outstanding performance across a wide range of parameters including wetting and detergency, as well as excellent formulation and handling properties. They are ideal candidates for paints & coatings, household and industrial & institutional cleaners, and textiles. | | | | | | | | | | | |
| ECOSURF™ SA-4 |   | No | Disp | 7.5 | PRT | Disp | Disp | -8 | L | Based on seed oil, low odor, no gel range, excellent wetting, oil soluble emulsifier | Concentrates, cleaners and detergents, prewash spotters, dry cleaning, paints and coatings, textile processing |
| ECOSURF™ SA-7 |   | No | 37 | 9.7 | PRT | 17/29 | 100/20 | 3 | L | Based on seed oil, low odor, no gel range, rapid dissolution, excellent wetting and detergency, effective emulsifier | Concentrates, cleaners and detergents, prewash spotters, paints and coatings, textile processing, agrochemicals |
| ECOSURF™ SA-9 |   | No | 57 | 11.1 | PRT | 22/29 | 100/20 | 4 | L | Based on seed oil, low odor, no gel range, rapid dissolution, excellent wetting and detergency, effective emulsifier | Concentrates, cleaners and detergents, prewash spotters, paints and coatings, textile processing |
| ECOSURF™ SA-15 |   | No | >100 | 13.5 | PRT | 153/34 | 130/25 | 27 | S | Based on seed oil, low odor, rapid dissolution, excellent wetting and detergency especially at higher temperatures, effective emulsifier | Concentrates, cleaners and detergents, prewash spotters, paints and coatings, textile processing, agrochemicals |
| TERGITOL™ ECO Castor Oil Ethoxylates TERGITOL™ ECO Series are biodegradable nonionic surfactants, based on renewable vegetable resources with different degrees of ethoxylation. These surfactants offer powerful emulsification performance over a wide range of applications agrochemicals, household and institutional cleaning and textile processing. Dow can vary the polymer architecture according to customer requests and application needs. | | | | | | | | | | | |
| TERGITOL™ ECO-20 |   | No | Disp | 10 | 20 | 56/40 | 50/25 | -30 | L | Excellent emulsifier and dispersant, water dispersable | Agrochemicals, textile and leather processing, household and institutional cleaning |
| TERGITOL™ ECO-30 HP |   | No | >100 | - | 30 | 53/41 | 68/60 | 0 | L | Excellent emulsifier and dispersant, water soluble. High purity grade, low salts concentration | Agrochemicals, textile and leather processing, household and institutional cleaning |
| TERGITOL™ ECO-36 |   | No | 80 | 13 | 36 | 44/40 | 60/50 | 12 | L | Excellent emulsion stabilizer | Agrochemicals, textile and leather processing, household and institutional cleaning |
| TERGITOL™ ECO-40 |   | No | 80 | 13 | 40 | 50/40 | 60/55 | 15 | L | Excellent emulsion stabilizer | Agrochemicals, textile and leather processing, household and institutional cleaning |

 Readily biodegradable  CleanGredients™  EPA inerts list

ECOSURF™ products are sold under trade name TERGITOL™ in Canada and Japan.

Footnotes:

¹APE = Alkyl phenol ethoxylate

²Cloud point: °C, 1 wt% actives aqueous solution

³HLB range: <10 w/o emulsifier, >10 o/w emulsifier, 10-15 good wetting, 12-15 detergents

⁴Critical micelle concentration: ppm at 25°C

⁵Surface tension: dynes/cm at 1% actives, 25°C

⁶Ross-Miles foam height: mm at 0.1 wt% actives, 25°C, initial / 5 minute

⁷Pour point: °C

⁸Form at 25°C: L = Liquid, S = Solid



















MWF= Metalworking fluids

Ins = Insoluble

Disp = Dispersible

PRT = Proprietary

Bio-based nonionic surfactants

| Product | Product highlights | APE based ¹ | Cloud point ² | HLB ³ | Moles EO | CMC ⁴ / surface tension ⁵ | Foam height ⁶ | Pour point ⁷ | Form ⁸ | Features | Applications |
|--|---|------------------------|--------------------------|------------------|----------|---|--------------------------|-------------------------|-------------------|--|--|
| TRITON™ Alkyl Polyglucosides TRITON™ BG and TRITON™ CG Specialty Surfactants are non-ionic products used in household and industrial and institutional detergent formulations where high, stable foam is required or where high caustic concentrations are necessary | | | | | | | | | | | |
| TRITON™ BG-10 |    | No | >100 | - | 0 | 1591/28 | 112/115 | -5 | L | Soluble in highly alkaline solutions, good detergency and wetting properties, mild, listed on CleanGredients™ and US EPA Safer Choice Formulations | Bottle washing, metal cleaners, highly alkaline detergents, paint strippers, aluminum brighteners, agrochemicals |
| TRITON™ CG-50 |    | No | >100 | - | 0 | 870/27 | 112/112 | 0 | L | Soluble in highly alkaline solutions, mild, good detergent and wetter, high stable foam, listed on CleanGredients™ for US EPA Safer Choice Formulations | Bottle washing, metal cleaners, highly alkaline detergents, paint strippers, aluminum brighteners, agrochemicals |
| TRITON™ CG-110 |    | No | >100 | - | 0 | 1748/27 | 105/100 | -15 | L | Soluble in highly alkaline solutions, mild, low skin drying effects, good detergent and wetter, high stable foam, listed on CleanGredients™ and US EPA Safer Choice Formulations | Bottle washing, metal cleaners, highly alkaline detergents, paint strippers, aluminum brighteners, agrochemicals |
| TRITON™ CG-425 |    | No | >100 | - | 0 | 61/29 | 140/140 | -18 | L | Soluble in highly alkaline solutions, mild, good detergent and wetter, high stable foam | Glass cleaners, highly alkaline detergents |
| TRITON™ CG-600 |    | No | >100 | - | 0 | 74/29 | 80/80 | 6 | L | Soluble in highly alkaline solutions, mild, good detergent and wetter, high stable foam | Glass cleaners, highly alkaline detergents |
| TRITON™ CG-650 |    | No | >100 | - | 0 | 67/29 | 110/110 | -18 | L | Soluble in highly alkaline solutions, mild, good detergent and wetter, high stable foam | Glass cleaners, highly alkaline detergents |

 Readily biodegradable  CleanGredients™  EPA inerts list

Footnotes:

¹APE = Alkyl phenol ethoxylate

²Cloud point: °C, 1 wt% actives aqueous solution

³HLB range: <10 w/o emulsifier, >10 o/w emulsifier, 10-15 good wetting, 12-15 detergents

⁴Critical micelle concentration: ppm at 25°C

⁵Surface tension: dynes/cm at 1% actives, 25°C

⁶Ross-Miles foam height: mm at 0.1 wt% actives, 25°C, initial / 5 minute

⁷Pour point: °C

⁸Form at 25°C: L = Liquid, S = Solid




















MWF= Metalworking fluids

Ins = Insoluble

Disp = Dispersible

PRT = Proprietary

Polypropylene glycols and random copolymers

| Product | Product highlights | APE based ¹ | Molecular weight | Specific gravity ² @25/25°C | Average viscosity ³ , cSt @40°C | Pour point, °C | Refractive index ⁴ @25°C | Density lb/gal @25°C | Features | Applications |
|--|---|------------------------|------------------|---|---|-------------------|--|----------------------------|--|---|
| Polypropylene Glycols Polypropylene Glycols are polymers of propylene oxide. They are clear, viscous liquids with low pour points. Viscosity increases and water solubility decreases with increasing molecular weight. DOW™ P-series polyglycols are linear polymers containing two terminal hydroxyl groups. DOW™ PT-series polyglycols are glyceryl ether polymers containing three terminal hydroxyl groups. | | | | | | | | | | |
| PT250 |  | No | 250 | 1.091 | 285 | -18 | 1.459 | 9.07 | Compatibility, solvency, low toxicity, low odor, natural lubricity, low ash, non-varnishing, chemically stable | Synthetic lubricants, foam control, chemical intermediates, viscosity modifiers |
| PT700 |  | No | 700 | 1.033 | 108 | -32 | 1.453 | 8.59 | Compatibility, solvency, low toxicity, low odor, natural lubricity, low ash, non-varnishing, chemically stable | Synthetic lubricants, foam control, chemical intermediates, viscosity modifiers |
| PT3000 |  | No | 3000 | 1.01 | 235 | -27 | 1.451 | 8.40 | Compatibility, solvency, low toxicity, low odor, natural lubricity, low ash, non-varnishing, chemically stable | Synthetic lubricants, foam control, chemical intermediates, viscosity modifiers |
| PT4800 |  | No | 4800 | 1.018 | 415 | -25 | 1.45 | 8.5 | Compatibility, solvency, low toxicity, low odor, natural lubricity, low ash, non-varnishing, chemically stable | Synthetic lubricants, foam control, chemical intermediates, viscosity modifiers |
| P425 |   | No | 425 | 1.007 | 33 | -45 | 1.447 | 8.39 | Compatibility, solvency, low toxicity, low odor, natural lubricity, low ash, non-varnishing, chemically stable | Synthetic lubricants, foam control, chemical intermediates, cosolvents |
| P600 |   | No | 600 | 1.006 | 55 | -25 | 1.447 | 8.39 | Compatibility, solvency, low toxicity, low odor, natural lubricity, low ash, non-varnishing, chemically stable | Synthetic lubricants, foam control, chemical intermediates, cosolvents |
| P1000TB |   | No | 1000 | 1.005 | 78 | -25 | 1.448 | 8.38 | Compatibility, solvency, low toxicity, low odor, natural lubricity, low ash, non-varnishing, chemically stable | Synthetic lubricants, foam control, chemical intermediates, cosolvents |
| P1200 |   | No | 1200 | 1.003 | 91 | -40 | 1.448 | 8.38 | Compatibility, solvency, low toxicity, low odor, natural lubricity, low ash, non-varnishing, chemically stable | Synthetic lubricants, foam control, chemical intermediates, cosolvents |
| P2000 |   | No | 2000 | 1.002 | 160 | -30 | 1.449 | 8.34 | Compatibility, solvency, low toxicity, low odor, natural lubricity, low ash, non-varnishing, chemically stable | Synthetic lubricants, foam control, chemical intermediates, cosolvents |
| P3000 |   | No | 3000 | 1.002 | 265 | -25 | 1.45 | 8.36 | Compatibility, solvency, low toxicity, low odor, natural lubricity, low ash, non-varnishing, chemically stable | Synthetic lubricants, foam control, chemical intermediates, cosolvents |
| P4000 |   | No | 4000 | 1.004 | 455 | -26 | 1.45 | 8.36 | Compatibility, solvency, low toxicity, low odor, natural lubricity, low ash, non-varnishing, chemically stable | Synthetic lubricants, foam control, chemical intermediates, cosolvents |
| Random Copolymers Polyglycol Copolymers are polymers of ethylene oxide and propylene oxide. Polyglycol 15-200 finds utility where a water soluble liquid with a low pour point is desired. | | | | | | | | | | |
| 15-200 |  | No | 2400 | 1.069 | 180 | 51 | 1.460 | 8.90 | Compatibility, solvency, low toxicity, low odor, natural lubricity, low ash, non-varnishing, chemically stable | Foam control, chemical intermediates, viscosity modifiers |

 Readily biodegradable  CleanGredients™  EPA inerts list

Footnotes:









¹APE = Alkyl phenol ethoxylate

²ASTM D 892

³ASTM D 445/446

⁴ASTM D 1218

Anionic surfactants

| Product | Product highlights | APE based ¹ | Actives | Diluent | Form ² | Surface tension ³ | | Foam ⁴ | | Features | Applications |
|---|---|------------------------|---------|-----------------------------------|--------------------------|------------------------------|-----------------------|----------------------|-----------------------|--|---|
| | | | | | | Neutral ⁵ | Alkaline ⁶ | Neutral ⁵ | Alkaline ⁶ | | |
| DOWFAX™ Alkyldiphenyloxide Disulfonate Salts DOWFAX™ Surfactants are an excellent choice for formulations containing acids, bleach, or caustic. They provide excellent solubility and stability in concentrated electrolytes, and they're remarkably resistant to oxidative and thermal degradation. | | | | | | | | | | | |
| DOWFAX™ 2A1 |  | No | 45 | Water | L amber | 34 | 35 | 140/130 | 145/145 | Excellent solubility and stability in acidic, alkaline, bleach and other oxidizing systems, dispersant, emulsion stabilizer, rinses easily from surfaces | Cleaners, textile, pulp/paper, agrochemicals, oilfield, emulsion polymerization, fragrance solubilization |
| DOWFAX™ 3B2 |  | No | 45 | Water | L yellow/ lt brown | 37 | 38 | 135/135 | 140/120 | Excellent stability in alkaline, acid, bleach and oxidizing systems, hard water tolerant, rinses easily from surfaces | Textile and pulp/paper processing, agrochemicals, oilfield, cleaners |
| DOWFAX™ 8390 |  | No | 35 | Water | L light brown | 44 | 46 | 120/25 | 140/25 | Emulsion stabilizer, excellent solubility, stable in oxidizing systems, high level of particulate soil detergency, excellent rinseability | Emulsion polymerization, cleaners and detergents, oil field chemicals, textile, pulp and paper |
| DOWFAX™ C6L | - | No | 45 | Water | L light brown | 34 | 34 | 145/140 | 145/130 | Reduces gelation, provides coupling, excellent solubility and stability, hypochlorite stable, low visible residue, rinses easily from surfaces, hydrotrope | Cleaners and detergents, oilfield chemicals |
| DOWFAX™ C10L |  | No | 45 | Water | L yellow/ brown | 35 | 37 | 135/125 | 130/115 | Low streaking and low visible residue, rapid dissolution, excellent stability | Glass and all-purpose cleaners and other detergents, agrochemicals |
| TRITON™ GR Dioctyl Sulfosuccinates TRITON™ GR Series surfactants feature excellent wetting and rewetting properties as well as excellent emulsifying and dispersing ability. These versatile surfactants are available in a range of solvent compatibilities for use in cleaning, paint and coatings, emulsion polymerization and other applications. | | | | | | | | | | | |
| TRITON™ GR-5M |  | No | 60 | IPA ⁷ / water | L colorless | 26 | NR ⁸ | 190/180 | NR | Excellent wetting, emulsifying and dispersing ability | Paints and coatings, paper and textile, agrochemicals, cleaners, oilfield |
| TRITON™ GR-7M |  | No | 64 | Petroleum distillate ⁹ | L amber | Ins | Ins | Ins | Ins | Excellent emulsifying and dispersing ability, oil soluble | Dry cleaning, paints and coatings, agrochemicals, oilfield chemicals |
| TRITON™ Phosphate Esters TRITON™ H-55, TRITON H-66, and TRITON QS-44 are anionic hydrotropes that provide solubilization for nonionic surfactants in low to highly built cleaner systems. TRITON QS-44 and TRITON XQS-20 surfactants are also used in emulsification polymerization. | | | | | | | | | | | |
| TRITON™ H-55 |  | No | 50 | Water | L amber | 45 | 53 | 8/0 | 25/0 | Hydrotrope, stable in acidic and alkaline conditions | Solubilizer for surfactants into highly built detergents |
| TRITON™ H-66 |  | No | 50 | Water | L yellow | 45 | 41 | 50/8 | 105/25 | Hydrotrope, stable in acidic and alkaline conditions, uniquely effective with low foam surfactants | Solubilizer for surfactants into built detergents and other formulated systems |
| TRITON™ QS-44 | - | Yes | 80 | Water | L amber | 38 | 39 | 130/65 | 150/140 | Hydrotrope with surface activity, good solubility in alkali, stable on solid caustic, hypochlorite stable | Cleaners, emulsion polymerization, agrochemicals, solubilizer for low built detergents |
| TRITON™ XQS-20 | - | Yes | 70 | Water | L amber | 46 | 46 | 145/130 | 130/120 | High HLB emulsifier and stabilizer | Emulsion polymerization |
| TRITON™ Sulfates TRITON™ sulfate and sulfonate anionic surfactants offer excellent wetting, emulsifying, dispersing and stabilizing ability. Applications include emulsion polymerization, wax emulsification, textile processing, and cleaners. | | | | | | | | | | | |
| TRITON™ QS-15 | - | No | 100 | None | L amber | 33 | 36 | 95/70 | 150/15 | Excellent detergent, soluble and stable in hot alkaline solutions, uniquely effective in high soil loads | Highly alkaline metal cleaners, bottle washing, zinc plating brightener, gas well cleaning |
| TRITON™ XN-45S | - | Yes | 60 | Ethanol/ water | L amber | 33 | 32 | 170/165 | 170/170 | Excellent wetting, emulsifying and dispersing ability, hypochlorite stable | Emulsion polymerization, wax emulsification, cleaners |

 Readily biodegradable  CleanGredients™  EPA inerts list

Footnotes:

¹APE = Alkyl phenol ethoxylate

²Form at 25°C: L = Liquid, S = Solid

³Surface Tension: dynes/cm at 1 wt% actives, 25°C

⁴Ross-Miles foam height: mm at 1 wt% actives, 25 °C, initial / 5 minute

⁵Actual pH = 7 (distilled water)

⁶Actual pH = 12.5 (sodium hydroxide solution)









⁷IPA = Isopropanol

⁸NR = Not recommended; can hydrolyze under some alkaline conditions

⁹Blend of ethanol, naphtha, propylene glycol and naphthalene

Ins = Insoluble

Low foam surfactants

| | ECOSURF™ LFE-635 | ECOSURF™ LFE-1410 | TRITON™ DF-12 | TRITON™ DF-16 | TRITON™ DF-20 |
|--|--|---|---|---|---|
| Product highlights |   |   |  |   |  |
| Dow low foam surfactants include specialty products used in applications where low- to no-foam performance is required. These high performance solutions provide excellent detergency and wetting properties, as well as caustic and acid stability. | | | | | |
| Typical physical properties | | | | | |
| Active ingredient, wt % | 100 | 100 | 100 | 100 | 100 |
| Cloud point, 1% aqueous soln, °C (°F) | 35 | 10 | 17 (63) | 36 (97) | — |
| HLB (calculated) | 10.5 | 8.4 | 10.6 | 11.6 | — |
| Surface tension ¹ | 32 | 35 | 34 | 30 | 30 |
| Critical Micelle Concentration (CMC), ppm | 315 | 85 | 290 | 530 | 180 |
| – Viscosity at 25 °C (77 °F), cP | | | 60 | 35 | 630 |
| – Pour point, ASTM D 97, °C (°F) | -42 | 5 | 16 (61) | -6 (22) | -25 (-13) |
| APE-based | No | No | No | No | No |
| Performance characteristics | | | | | |
| Stability on solid caustic | Poor | Poor | Good | Poor | NR ² |
| Stability in nonoxidizing acids | Excellent | Excellent | Good | Excellent | NR |
| Chlorine stability in dry-blended powders ⁴ | NR | NR | NR | NR | NR |
| Food soil defoaming | Good | Good | Good | Poor | — |
| Soap soil defoaming | Poor | Poor | Fair | Poor | — |
| Foaming performance minimum water temperature for low foam, °C (°F) | 38 (100) | 16 (60) | 16 (60) | 38 (100) | 43 (110) |
| Applications | | | | | |
| Food and dairy cleaners | • | • | • | • | |
| Ion exchange resin cleaners | • | | | • | |
| Machine dishwash | • | • | • | | |
| Metal cleaners | • | • | • | • | • |
| Pigment dispersions | • | | | • | |
| Pulp and paper | • | • | • | • | |
| Rinse aids | • | • | • | • | |
| Textile processing | • | | | • | |
| Wetting agent | • | • | • | • | |

 Readily biodegradable  CleanGredients™  EPA inerts list

ECOSURF™ products are sold under trade name TERGITOL™ in Canada and Japan.

Footnotes:



¹ 1 wt% actives, dynes/cm




² NR - Not Recommended

³ Excellent stability; however, moderate foaming in acid systems. Use in combination with TRITON™ CF-10 or another low foam surfactant for improved low foaming performance in acid systems.

⁴ With organic chlorine release agent

Low foam surfactants

| | TERGITOL™ MinFoam 2X | TERGITOL™ MinFoam 1X | TRITON™ CF-10/CF-10 (90%) | TRITON™ CF-21 | TRITON™ CF-32 | TRITON™ CF-76 | TRITON™ CF-87 |
|--|---|---|------------------------------|---------------|------------------------|---------------|---------------|
| Product highlights |  |  | - | - | - | - | - |
| Dow low foam surfactants include specialty products used in applications where low- to no-foam performance is required. These high performance solutions provide excellent detergency and wetting properties, as well as caustic and acid stability. | | | | | | | |
| Typical physical properties | | | | | | | |
| Active ingredient, wt % | 100 | 100 | 100 | 100 | 95 | 100 | 90 |
| Cloud point, 1% aqueous soln, °C (°F) | 21 | 40 | 28 (82) | 40 (104) | 25 (77) | 31 (88) | 32 (90) |
| HLB (calculated) | 12.1 | 12.6 | 12.6 | 12.9 | 11 | 12.6 | 12.7 |
| Surface Tension ¹ | 31 | 30 | 36 | 32 | 37 | 33 | 34 |
| Critical Micelle Concentration (CMC), ppm | 24 | 34 | 75 | 130 | -- | 25 | 80 |
| - Viscosity at 25 °C (77 °F), cP | 56 | 61 | 250 | 250 | 550 | 295 | 240 |
| - Pour point, ASTM D 97, °C (°F) | <-40 (<-40) | -34 (-20) | 15 (59) / -1 (30) | -27 (-16) | 2 (35) | 7 (45) | 0 (32) |
| APE-based | No | No | Yes | Yes | No | Yes | Yes |
| Performance characteristics | | | | | | | |
| Stability on solid caustic | Poor | Poor | Fair | Poor | Poor | Excellent | Good |
| Stability in nonoxidizing acids | Excellent | Excellent | Good | Excellent | Excellent ³ | NR | Good |
| Chlorine stability in dry-blended powders ⁴ | NR | NR | Good | NR | Fair | Good | NR |
| Food soil defoaming | Poor | Poor | Fair | Poor | Excellent | Good | Fair |
| Soap soil defoaming | Fair | Fair | Fair | Poor | Good | Good | Poor |
| Foaming performance minimum water temperature for low foam, °C (°F) | 27 (80) | 43 (110) | 38 (100) | 43 (110) | 29 (85) | 35 (95) | 38 (100) |
| Applications | | | | | | | |
| Food and dairy cleaners | | | | | • | • | |
| Ion exchange resin cleaners | | | | • | | | |
| Machine dishwash | | | • | | • | | |
| Metal cleaners | • | • | • | • | | • | |
| Pigment dispersions | • | • | • | • | | | |
| Pulp and paper | • | • | • | • | | | |
| Rinse aids | | | • | • | • | | • |
| Textile processing | | • | • | • | | | |
| Wetting agent | • | • | • | • | | | • |

 Readily biodegradable  CleanGredients™  EPA inerts list

Footnotes:

¹1 wt% actives, dynes/cm

²NR - Not Recommended

³Excellent stability; however, moderate foaming in acid systems. Use in combination with TRITON™ CF-10 or another low foam surfactant for improved low foaming performance in acid systems.

⁴With organic chlorine release agent

| | | | | | | | |
|---------------------------|--------------|----------------------|-------------------|----------------|-------------------|-----------------------|------------------|
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