



## Drumbeaters Surfactants

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Drumbeaters (DB) surfactant based cleaning systems are super efficient in removing oil, dirt and grease from contaminated surfaces. Our surfactant products and systems can be used in a wide variety of applications, from general purpose hard surface cleaning to solving highly complex technical problems.



### Advantages of DB Surfactants Systems:

- Replace traditional (organic) solvents.
- Recovery of oil for possible reuse.
- Highly efficient & EXCELLENT cleaning results.
- Surfactants work at ambient temperature. Eliminate expense of heating water.
- Surfactants are not explosive, flammable, toxic or corrosive.
- Environmentally safe!
- Reduced water discharge = reduced waste stream = reduced waste costs.
- Reuse the water/surfactant many times and refresh by adding more water and surfactants = reduced costs for cleaning.
- Reduced waste costs and increased efficiency = **DOLLARS SAVED!**

### Applications for DB Surfactants Systems:

- Remove almost 100% of the oil from oil filters. Then place clean filters into a metal drum and compact the cleaned oil filters inside of the drum using Drumbeaters In-Plant Model 7000 or Portable Model 8000.
- Clean oil residues and film from drums. When using Drumbeaters DWC Models that wash, rinse, and crush a drum all within one chamber along with having a wash/rinse water recirculation system, you can recapture the oil by using the DB surfactant in the wash/rinse water. See animations for DWC models.
- Clean oily soils and/or drilling cuttings to achieve less than 1% oil on solids. End result...clean soil/cuttings and the removed oil can be recycled. Further, Drumbeaters not only has the cleaning solutions for soils and drill cuttings but also has the equipment systems for use with the DB surfactants.
- Separate oily sludge from water. Remove oily residues found in water at oil refineries, off shore drill operations, etc. End result...oil free water and the removed oil and/or oil sludge can be recycled.
- Remove ink from printing presses, mixing equipment, and valves. DB surfactants are excellent for use to remove thermo print heat set color inks, UV inks, and sheeted color inks. One of the benefits of the DB surfactants is that the surfactants can be used at room temperature. This means money does not have to be spent to heat the water in order to clean parts. Printing presses can easily and quickly be cleaned to change from one color to another color.

## Surfactant & DB Technology:

Surfactants are surface active chemical agents. A surfactant molecule comprises a water soluble group and an oil soluble group. The special surfactants used in the DB microemulsion cleaning products not only remove oil, dirt, and grease from contaminated surfaces but they also lock away the contaminant in microcapsules. This greatly enhances the performance and cleaning capabilities of the DB surfactants. Next the microemulsion can be "flipped" and the oil that is locked in the micro emulsion is released for recycling or reuse. Further, the water is reused which means very little or no water discharge into the sewers. This results in reduced processing costs.

## Technology Definitions:

**Surfactant:** A surface-active substance – ORIGIN 1950's from surf(ace)act(ive)+ant. Surfactants act to reduce the surface tension of a liquid. The surface tension of water is 72 dyne/cm; a surfactant can reduce this to a value in the range of 30-50 dyne/cm.

**Surface-Active:** (Of a substance) tending to reduce the surface tension of a liquid in which it is dissolved.

**Microemulsion:** A microemulsion is a thermodynamically stable dispersion of one liquid phase into another, stabilized by an interfacial film of surfactant. This dispersion may be either oil-in-water or water-in-oil. Microemulsions are typically clear solutions, as the droplet diameter is approximately 100 nanometers or less. The interfacial tension between the two phases is extremely low. The final microemulsion state will not depend on order of mixing, and energy input only determines the time it will take to reach the equilibrium state. Microemulsions are two phase systems, in contrast to micellar solutions, which may be considered one phase.

**Emulsions:** Emulsions (or macroemulsions) are in contrast unstable, the suspended droplets will eventually agglomerate and the dispersed phase will phase separate. Emulsion droplet sizes are much larger, typically one micron or more, resulting in a cloudy or milky dispersion. The nature of an emulsion may depend on the order or mixing of the ingredients and the amount of energy put into the mixing process.

**Emulsification:** The process of dispersing one liquid in a second immiscible liquid; the largest groups of emulsifying agents are soaps, detergents and other surface-active compounds (surfactants).

**Emulsion Breaking:** In an emulsion, the combined sedimentation and coalescence of emulsified drops of the dispersed phase so that they will settle out of the carrier liquid; this can be accomplished mechanically (in settlers, cyclones, or centrifuges) with or without the aid of chemical additives to increase the surface tension of the droplets.

**Surface Tension:** The force acting on the surface of a liquid, tending to minimize the area of the surface; quantitatively, the force that appears to act across a line of unit length on the surface. Also known as interfacial force; interfacial tension; surface tensity.

**We sell directly from Elburn IL, USA**

**We have worldwide distribution**

**Phone: 630-365-5527**

**[sales@drumbeaters.com](mailto:sales@drumbeaters.com)**

**[www.drumbeaters.com](http://www.drumbeaters.com)**