



Berol[®] DR-B1

Outstanding cleaning with low environment impact

Berol DR-B1 has been assessed by the United States Environmental Protection Agency (U.S. EPA) for direct release into the environment. This means that a formulator will be allowed to put the Safer Choice label on a product that is intended for use as an outdoor cleaner.

Berol DR-B1 can be easily formulated into highly effective cleaners and degreasers.

Berol DR-B1 is designed to be the only surfactant in the formulation. Combined together with complexing agents and builders it will produce a high performing cleaning formulation.

The powerful cleaning performance of Berol DR-B1 can be used for a wide range of applications like; house washing, fence and deck cleaners, marine cleaning, garages, tools and outdoor equipment.

Berol DR-B1 direct release surfactant

- is stable in alkaline, acid and neutral cleaning formulations
- is stable with all types of complexing agents typically used in cleaning applications*
- is compatible with nonionic and anionic surfactants*
- is a medium foaming surfactant with fast foam collapse for easy rinsing

*All additional ingredients must also be EPA-approved for direct release if you intend to apply for Safer Choice approval for your outdoor cleaning formulation.

Why direct release?

EPA has raised the acute aquatic toxicity and biodegradability standards for products intended for outdoor use which are likely to bypass sewage treatment. Direct release products abide by these stricter standards and thus are safer for the environment, especially aquatic life.

Why is Berol DR-B1 different?

Berol DR-B1 provides a unique combination of outstanding performance and low environmental impact. Most EPA-approved direct release surfactants are poor degreasers, but Berol DR-B1 is the exception. Cleaning products formulated with Berol DR-B1 exceed the performance of competitive surfactant systems while meeting the EPA standards for direct release.

The below example compares the excellent degreasing achieved by the Berol DR-B1 formulation with the poor performance of similar cleaners based on other direct release-approved surfactants at the same concentration. The cleaners were poured onto a painted metal plate coated with train engine grease and rinsed off after 10 seconds with tap water.



Berol DR-B1

Surfactant 1
(anionic)

Surfactant 2
(nonionic)

Surfactant 3
(nonionic)

All formulations contain 2% surfactant, 2.3% SXS (40%), 4% Dissolvine[®] GL-47-S, balance water.

Berol DR-B1

For all your environmentally responsible outdoor cleaning needs.

Representative formulations

All formulations are expressed in percent of product by weight.

Water-based alkaline degreasing

Heavy duty degreaser concentrate

Berol DR-B1	9%
Dissolvine® GL-47-S	14%
Sodium Xylene Sulfonate (SXS), 40% solution	3.5%
Water	Balance
Dilution: 1:10 - 1:40	

Spray and rinse degreaser

Berol DR-B1	2%
Dissolvine GL-47-S	4%
Sodium Xylene Sulfonate (SXS), 40% solution	2.3%
Water	Balance
Use concentration: as-is	

All-purpose exterior cleaning (deck & fence, house & siding etc.)

All-purpose alkaline cleaner

Berol DR-B1	5%
Dissolvine GL-47-S	1%
Sodium citrate	1%
Ethanol	1%
Water	Balance
Dilution: 1:10 - 1:40	

All-purpose neutral cleaner

Berol DR-B1	5%
Sodium citrate	1%
Ethanol	1%
Water	Balance
pH	7.3
Dilution: 1:5 - 1:10	



Performance evaluations

Berol DR-B1 "spray and rinse degreaser" used on a tractor engine.



Before



After

Non-mechanical degreasing performance of a direct release approved alkaline Berol DR-B1 formulation compared with high pH commercial house washes at equivalent dilution (~0.2% surfactant concentration).



Berol DR-B1 formulation

Commercial house wash 1

Commercial house wash 2

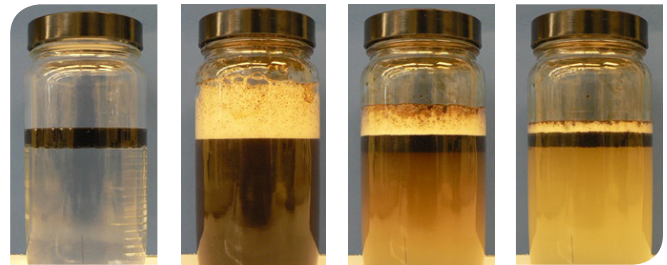
Commercial house wash 3

These commercial house wash formulations do not meet the criteria for direct release so if you use them you will not be able to successfully apply for the Safer Choice label.

Berol DR-B1 has "quick break" properties!

Many segments of the transportation industry require cleaners to have temporary emulsifying properties so that the removed oil and grease separates ("breaks") easily from the used cleaning solution after washing. The surface oily layer is skimmed off for disposal in accordance with local and federal regulations and the cleaner can be disposed of separately or recycled to reduce overall costs.

The example below shows the behavior of a direct release approved cleaning formulation containing Berol DR-B1 that has been shaken with used motor oil and left to stand. The cleaner separates from the oil rapidly enough to meet the requirements to be characterized as a "quick break" degreaser (Australian Motor Trades Association (MTA) "quick break" test method).



Initially

After shaking

1 minute

5 minutes

By replacing non-direct release-approved surfactants with Berol DR-B1, you will be able to use the Safer Choice label on your product without having to compromise on performance.



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About Nouryon

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For more information visit surfacechemistry.nouryon.com

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