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# The Effective and friendly way of cleaning

Berol 226 is an optimized blend of alcohol ethoxylate and cationic surfactants, intended to be used for water based degreasing.

Due to the efficient cleaning effect on organic soils, such as grease and oil, a cleaner based on Berol 226 can often replace a solvent. The cleaning effect will often be much better than with conventional products, particularly when an oily soil contains a lot of soot and pigments.

A water based alkaline cleaner based on Berol 226 and appropriate complexing agent can be viewed as a great improvement compared with conventional alkaline cleaners.

Berol 226 also has a degreasing effect in acid conditions.

A cleaner based on Berol 226 can be used in most application equipment including high pressure.

Berol 226 can be the cost effective way to achieve cleaner surfaces.

## Applications

- Vehicle cleaning
- Engine cleaning
- Engineering cleaning
- All-purpose cleaning
- Acid cleaning

## Manufacturing procedure

Berol 226 is designed to be used as the only surfactant in the formulation, together with complexing agent and other salts. The degreasing effect will be reduced dramatically if an anionic surfactant is added.

It is often possible to replace several other components when using Berol 226, giving saving in raw material handling and inventory levels. Thanks to this Berol 226 gives a lower total production cost.

1. Start with the water
2. Dissolve the salts
3. Add Berol 226
4. Mix

Check the temperature clarity interval.

## How to use Berol 226

- Never mix Berol 226 with an anionic surfactant
- Try to use Berol 226 as the only surfactant
- Check the temperature clarity interval of the produced cleaner (an easy and quick quality control analysis)

## Remember

Berol 226 is simple to use:

- One surfactant
- Easy to handle (Liquid)
- Easy to dissolve

A cleaning product will not be more efficient just because it has a complicated formula with many ingredients. Berol 226 is already optimized.

## Acid cleaner

- Engineering cleaning
- Sanitary cleaning
- Descaling

| | |
|---|---|
| 1-5% | Berol 226 |
| Up to 40% | Phosphoric acid, Citric acid or Hydrochloric acid |
| Rest | Water |
| pH (conc) | <1 |

Use: from concentrate to dilution 1:100

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## Heavy duty cleaners No.1

| | A<br>% | B<br>% | C<br>% | D<br>% | E<br>% |
|---|---|---|---|---|---|
| Water | 81 | 81 | 78 | 78 | 63.5 |
| $Na_4EDTA$ (40%) | - | - | 7 | 9 | 11.5 |
| TKPP** | 10 | 6 | 3 | 4 | - |
| Sodium metasilicate ($5H_2O$) | - | 4 | 3 | - | - |
| Berol 226 SA | 9 | 9 | 9 | 9 | 9 |
| pH (10% solution) | ~10 | ~12 | ~11.5 | ~11 | ~11 |

## Heavy duty cleaners No.2

| | A<br>% | B<br>% | C<br>% | D<br>% | E<br>% |
|---|---|---|---|---|---|
| Water | 81 | 81 | 82 | 83 | 70 |
| $Na_3NTA$ (93%)* | - | - | 3 | 4 | 5 |
| TKPP** | 10 | 6 | 3 | 4 | - |
| Sodium metasilicate ($5H_2O$) | - | 4 | 3 | - | - |
| Berol 226 SA | 9 | 9 | 9 | 9 | 25 |
| pH (10% solution) | ~10 | ~12 | ~11.5 | ~11 | ~11 |
| Dilution 1:10 to 1:100 | | | | | |

## Phosphate free cleaners No.1

| | F<br>% | G<br>% | H<br>% | I<br>% | J<br>% |
|---|---|---|---|---|---|
| Water | 68 | 76.9 | 85 | 82 | 80.5 |
| $Na_4EDTA$ (40%) | 23 | 14 | - | - | 4.5 |
| Trisodium citrate | - | - | 6 | 6 | 6 |
| Citric Acid | - | 0.1 | - | - | - |
| Sodium metasilicate ($5H_2O$) | - | - | - | 3 | - |
| Berol 226 SA | 9 | 9 | 9 | 9 | 9 |
| pH (10% solution) | ~11 | ~10 | ~8 | ~12 | ~10 |

## Phosphate free cleaners No.2

| | F<br>% | G<br>% | H<br>% | I<br>% | J<br>% |
|---|---|---|---|---|---|
| Water | 81 | 84.9 | 85 | 82 | 83 |
| $Na_3NTA$ (93%)* | 10 | 6 | - | - | 2 |
| Trisodium citrate | - | - | 6 | 6 | 6 |
| Citric Acid ($5H_2O$) | - | 0.1 | - | - | - |
| Sodium metasilicate ($5H_2O$) | - | - | - | 3 | - |
| Berol 226 | 9 | 9 | 9 | 9 | 9 |
| pH (10% solution) | ~11 | ~10 | ~8 | ~12 | ~10 |
| Dilution 1:10 to 1:100 | | | | | |

* $Na_3NTA$ = Trisodium nitrilotriacetic acide
**TKPP = Tetra potassium pyrophosphate