

# **Berol 260, 266, 840, Ethylan 1003, 1005**

*Narrow range Ethoxylated Alcohols*

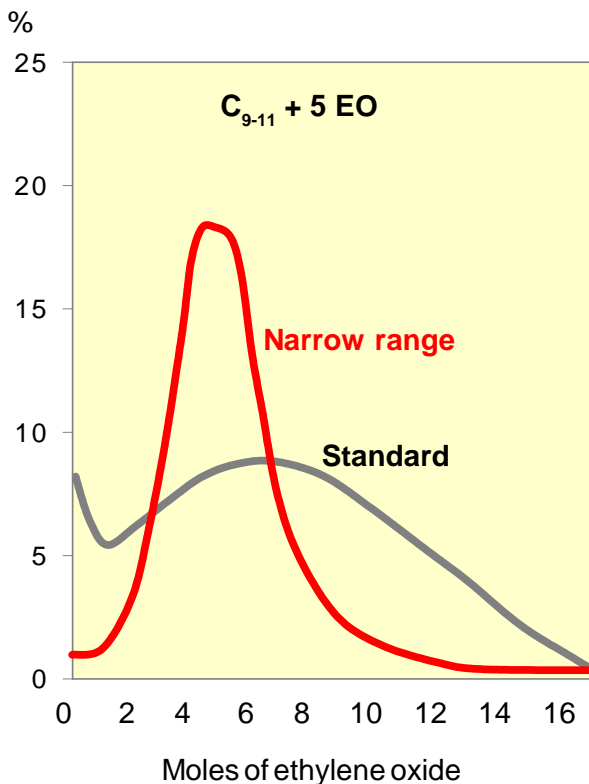
**Cleaning & Biocides**

## Narrow range

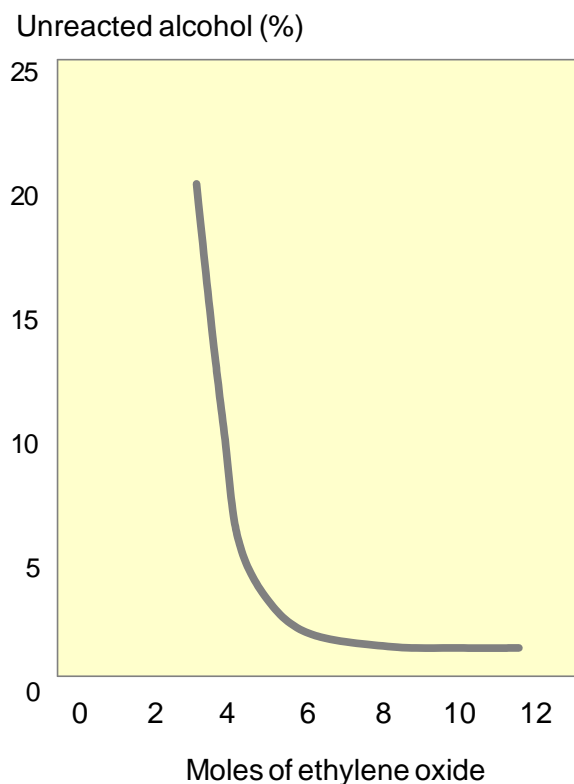
A narrow range ethoxylated alcohol, also called "peaked ethoxylate", has a distribution curve that is narrower than the equivalent standard alcohol ethoxylate and a considerably lower content of unreacted alcohol (see fig 1). This gives the nonionic surfactant focused properties, a very low odour, even if based on a short chain alcohol and avoids the formulation problems often associated with standard alcohol ethoxylates.

The lower the degree of ethoxylation, the higher the amount of free alcohol (see fig 2). Ethylan 1005 contains less than 2.5% unreacted alcohol, Berol 260 and Berol 266 less than 1%. Berol 840 contains max 0.2% free alcohol and thus the product has now alcohol odour.

**Fig 1. EO-distribution - alcohol ethoxylates**



**Fig 2. Content of unreacted alcohol in standard alcohol ethoxylates**



## Efficiency

Both Berol 260 and Berol 266 are based on short chain alcohols ( $C_9$ - $C_{11}$ ) giving fast penetration of soil and improved performance on hard surfaces. Berol 840 is based on a branched  $C_8$ -alcohol giving a very low foam and good wetting properties. Ethylan 1005 and Ethylan 1003, with  $C_{10}$  Guerbet alcohol, gives fast penetration, low foam, excellent wetting and emulsifying properties.

The lower content of free alcohol and more focused molecular spread makes formulation easier.

Berol 266, with two cloud points, allows for the replacement of several different nonionics in various formulations. This gives the possibility to optimise raw material purchase, reduce inventories, reduce number of raw materials and simplify production routines.

## Odour

Less free alcohol gives significantly lower odour. This can be important in many applications where short chain alcohol ethoxylates have previously been excluded.

	<b>Berol 260</b> <i>C<sub>9-11</sub>+ 4 EO</i>	<b>Berol 266</b> <i>C<sub>9-11</sub>+ 5.5 EO</i>	<b>Berol 840</b> <i>C<sub>8</sub>+ 4 EO</i>	<b>Ethylan 1003</b> <i>C<sub>10</sub>+ 3.3 EO</i>	<b>Ethylan 1005</b> <i>C<sub>10</sub>+ 5 EO</i>
Cloud point, °C <sup>1)</sup>	56-59	24-29, 55-58	49-54	31-34	47-53
HLB-value	10.5	12.1	11.5	9.8	11.6

<sup>1)</sup> For Berol 266 1% in water, for the other products: 5 g product in 25 ml 25% butyl diglycol.

## Berol 260

### Applications - Degreasing

- Engineering cleaning
- Engine cleaning
- All purpose cleaning
- Vehicle cleaning
- Microemulsions

**Berol 260** exhibits excellent fatty soil removal in waterbased cleaning products especially when it is combined with hydrotropes such as Berol R648 or Ampholak YJH-40.

## Berol 266

### Applications - Multi Purpose

- Detergents for textiles
- Vehicle cleaning
- All purpose cleaning
- Microemulsions

**Berol 266** is a nonionic surfactant with two cloud points in water, which makes it rather unique. Cleaning products often contain two nonionic surfactants with different cloud points. Berol 266 can often replace both cost effectively.

## Berol 840

### Applications - Low Foam Cleaning

- CIP
- Machine dishwashing
- Metal cleaning
- Carpet cleaning
- Rinse aid for machine dishwashing

**Berol 840** is a very low foaming nonionic surfactant with defoaming properties on protein foam. Berol 840 has good degreasing and wetting properties if the concentration is >2 g/l.

## Ethylan 1003

### Applications - Cold Degreasing and Low Foam Cleaning

- Microemulsions and emulsions
- CIP
- Machine dishwashing
- Rinse aid for machine dishwashing

**Ethylan 1003** exhibits excellent emulsifying and wetting properties. Ethylan 1003 is a very low foaming surfactant with defoaming properties.

## Ethylan 1005

### Applications - Degreasing and Low Foam Cleaning

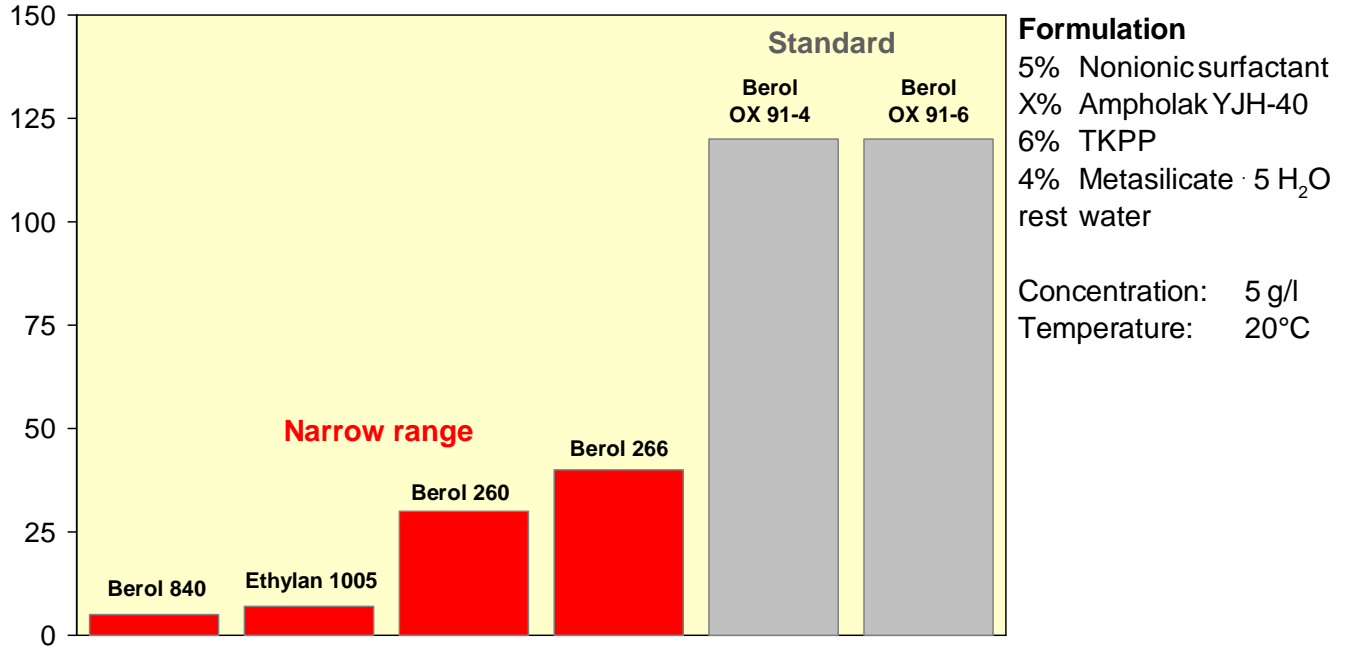
- Engineering cleaning
- Engine cleaning
- All purpose cleaning
- Vehicle cleaning
- Microemulsions
- Machine dishwashing
- Rinse aid for machine dishwashing

**Ethylan 1005** exhibits excellent wetting and fatty soil removal in waterbased cleaning products. Ethylan 1005 is also a very low foaming nonionic.

# Foaming

Berol 260, Berol 266, Berol 840 and Ethylan 1005 foam less than the equivalent standard alcohol ethoxylate on their own and when formulated with other low foam ingredients, such as a hydrotrope like Ampholak YJH-40.

Foam height (mm)



The formulations recommended in the brochure are to be seen as guidelines. Akzo Nobel strongly recommends the customer to check fitness for purpose in each individual case.

For additional information and assistance,  
please contact your local Akzo Nobel Sales Representative  
or consult our website at

[www.surfactants.akzonobel.com](http://www.surfactants.akzonobel.com)

