

# Smart Choices in Hydrotropes

## Institutional & Industrial Cleaning

Hydrotropes are deployed in various liquid cleaners to increase the solubility of surfactant in concentrated formulation and thus improve the stabilities.

BASF offers a series of hydrotropes fitting different performance requirement in different institutional & industrial cleaning applications.



### Product & Application Guide

| Product                      | Feature                      | Active matter | Biodegradability | Primary Applications |     |           |           |      |
|------------------------------|------------------------------|---------------|------------------|----------------------|-----|-----------|-----------|------|
|                              |                              |               |                  | CIP                  | COP | C.Laundry | Rinse Aid | HSC* |
| <b>Glucopon®<br/>101LF</b>   | Alkyl Polyglycoside          | Approx. 62%   | +++              | 1                    |     |           |           |      |
| <b>Glucopon®<br/>225 DK</b>  | Caprylyl/Decyl Polyglycoside | Approx. 70%   | +++              | 1                    |     |           |           |      |
| <b>Disponil®<br/>EHS 47</b>  | Sodium Etasulfate            | Approx. 47%   | +++              |                      |     |           |           |      |
| <b>Deriphat®<br/>160C</b>    | Amphoteric                   | Approx. 30%   | +++              | 2                    |     |           |           |      |
| <b>Lutensol®<br/>CS 6250</b> | Alcohol Ethoxylate           | Approx. 100%  | ++               | 2                    |     |           |           |      |

CIP: Clean-In-Place

COP: Cleaning out of Place

C. Laundry: Commercial Laundry

\* HSC: Hard surface cleaning (incl. Degreaser)

+++ : Readily Biodegradable by OECD criteria (≥60% in 10-day window)

++ : Readily biodegradable (≥60% in 28 days) | <sup>1</sup>Alkaline CIP | <sup>2</sup>Acidic CIP

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## Foam profile and alkaline tolerance

Surfactants generate foam with motions in the system. Low Foaming surfactant is designed particularly for CIP cleaning and rinse aid in Auto Dishwash. However, COP cleaning requires high foaming ability of cleaners to cover the surface for efficient cleaning.

| Product                  | Foam Height (mm)<br>Ross Miles (0.1% wt%, 25 °C) |        |       | Maximum Alkaline<br>tolerance (Hydrotrope<br>dosage :5% active) |
|--------------------------|--|--------|-------|---|
|                          | 0 min  | 30 sec | 5 min |   |
| <b>Glucopon® 101LF</b>   | 20   | 0      | 0     | 20%   |
| <b>Glucopon® 225 DK</b>  | 370  | 320    | 300   | 30%   |
| <b>Disponil® EHS 47</b>  | 45   | 40     | 30    | 10%   |
| <b>Deriphat® 160 C</b>   | 170  | 130    | 110   | 20%   |
| <b>Lutensol® CS 6250</b> | 40   | 10     | 5     | N/A   |

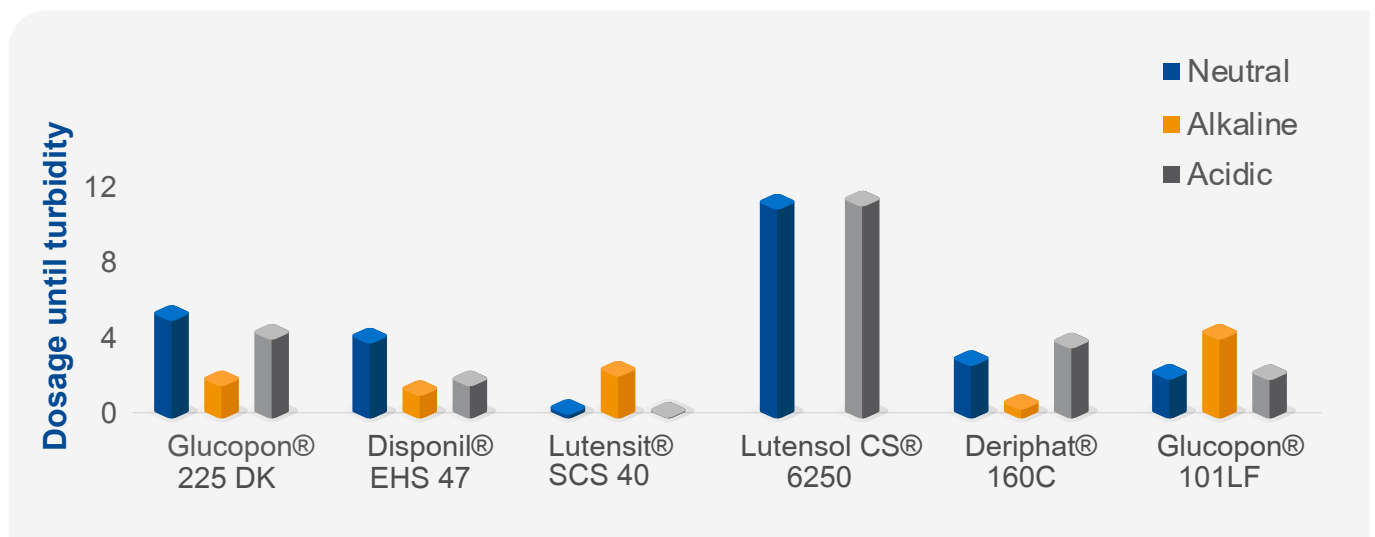
## Hydrotrope Power

Proper hydrotropes ensure clear liquid formulation under different PH range, especially when the surfactant concentration increases, the consequent turbidity cause operational issues.

**Neutral: (90% water, 5% hydrotrope) + Plurafac LF 403 until turbid**

**Alkaline: (75% water, 10% NaOH, 5% hydrotrope) + Plurafac LF 403 until turbid**

**Acidic: (75% water, 10% Lutropur MSA, 5% hydrotrope) + Plurafac LF 403 until turbid**

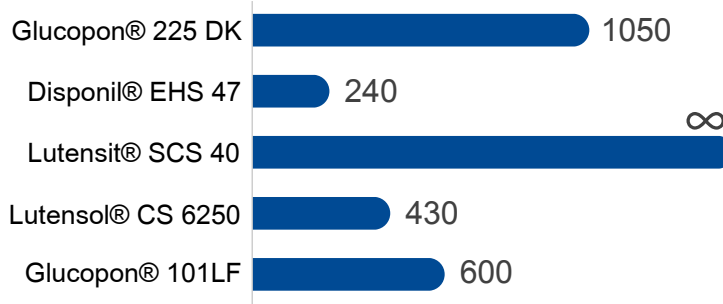


## Viscosity management

### Tested formulation

|                  |             |
|------------------|-------------|
| Lutensol® A7N    | 50%         |
| Plurafac® LF 403 | 5%          |
| Hydrotrope       | 5% (active) |
| Water            | to 100%     |

### Viscosity of tested formulation



Viscosity: Brookfield, 60 rpm [mPa.s], 23° C

## Rinse aid for Auto Dishwash (Cloud point: 40°C)

| Hydrotrope (wt.%) | Plurafac® Types         |                        |                         | Pluronic® Types          |
|-------------------|-------------------------|------------------------|-------------------------|--------------------------|
|                   | LF 221 10%<br>LF 403 5% | LF221 10%<br>LF 305 5% | LF 300 10%<br>LF 403 5% | PE 6200 10%<br>PE6100 5% |
| Disponil® EHS 47  | 2.16                    | 1.08                   | 4.67                    | 3.94                     |
| Lutensit® SCS 40  | 3.98                    | 1.32                   | 6.34                    | 12.06                    |

### BASF Care Chemical Home Care and I&I Solutions

BASF East Asia Regional Headquarters Limited

45/F Jardine House

No. 1 Connaught Place

Central, Hong Kong

[detergents-cleaners-hk@basf.com](mailto:detergents-cleaners-hk@basf.com)

<https://www.homecare-and-i-and-i.basf.com/asiapacific>

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