

### Belclene® 283 – Antiscalant and Zinc Stabilizer for Industrial Water Treatment

Belclene 283 antiscalant has been developed as a calcium carbonate inhibitor and a multifunctional formulation support agent in industrial water systems and other related applications.

The active ingredient of Belclene 283 is a maleic acid copolymer.

#### Typical physical properties

|                      |   |
|----------------------|---|
| Appearance           | Amber liquid  |
| Odour                | Slight  |
| Solids content       | 45-50% (w/w)  |
| Specific gravity     | 1.16-1.20   |
| pH (undiluted)       | <2  |
| Viscosity at 25°C    | 12-30 cPs (10-25 cSt)   |
| Boiling point range  | 100-102°C (212-215°F)   |
| Freezing point range | -6 to -4°C (21-25°F)  |
| Solubility in;       |   |
| water                | Miscible  |
| ethylene glycol      | Miscible  |
| methanol             | Miscible  |
| 50% caustic soda     | Readily neutralized with evolution of heat  |
| pH limitations       | To avoid precipitation, formulate below pH 2.5 or above pH 7.5. At in use concentrations Belclene 283 is stable across the entire pH range. |

#### Thermal stability (DSC)

Differential scanning calorimetry has shown that Belclene 283 is stable up to a temperature of 200°C (392°F).

#### Chemical reactivity/compatibility

Belclene 283 is not affected by chlorine or other oxidising biocides under normal use conditions. Test for compatibility with long chain nitrogen compounds, aliphatic amines and quaternary ammonium compounds

#### Logistics

|                |   |
|----------------|---|
| Classification | corrosive for conveyance<br>irritant for supply<br>IATA class 8 UN No 1760<br>IMDG class 8 UN No 1760           |
| Packaging      | HDPE 220L XL-ring Mauser Drum<br>height 935 mm<br>diameter 580 mm<br>gross weight 248.5 kg<br>net weight 240 kg |

#### Regulatory approvals

|              |   |
|--------------|---|
| FDA (USA)    | 21 CFR 176.170-paper/<br>paperboard-fatty foods<br>21 CFR 176.180- paper/<br>paperboard-dry foods |
| USDA (USA)   | G5: cooling and retort water<br>G7: boilers, steamlines, cooling<br>Systems no food contact       |
| MITI (Japan) | Japanese discharge regulations  |

#### Toxicology data

|                                     |                               |
|-------------------------------------|-------------------------------|
| Acute oral LD <sub>50</sub> (rats)  | 3874 mg/kg                    |
| Eye irritation (rabbits)            | Irritant (EEC guidelines)     |
| Skin irritation (rabbits)           | Non-irritant (EEC guidelines) |
| Toxicity to fish                    |                               |
| 96-hr LC <sub>50</sub> (zebra fish) | >1000 mg/l                    |

#### Ecological data

|   |  |
|---|--|
| 96-hr LC <sub>50</sub> (brown shrimp)     | 2160 mg/l                                    |
| 72-hr EC <sub>50</sub> (algal inhibition) | 380 mg/l                                     |
| COD                                       | 1114 mg O <sub>2</sub> /g                    |
| Biodegradability                          | 35% in 35 days<br>(OECD 302B screening test) |

Further details on safety and handling are available in the materials safety data sheet on this product.

## Patents

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