

ZEELCHEM™ 200 — Polymaleic Acid

Polymaleic Acid (HPMA)

Technical Data Sheet · Revision 00 · Date of issue 19-10-2026

ISO 9001:2015 · ISO 22000:2018 · ISO 14001:2015 CERTIFIED MANUFACTURER · MADE IN INDIA

Product name	ZEELCHEM™ 200 Polymaleic Acid
Chemical name	Polymaleic Acid (HPMA)
Synonyms / abbreviation	HPMA / PMA
CAS No.	26099-09-2
Molecular formula	$(C_4H_4O_4)_n$
Molecular weight	Approx. 400 – 800
Category	Water Treatment Polymer
HS code (indicative)	3911.90
Physical form	Light-yellow to amber transparent liquid

PRODUCT DESCRIPTION

ZEELCHEM™ 200 is hydrolysed polymaleic anhydride (HPMA), a low-molecular-weight polycarboxylic acid with a very high density of carboxyl groups. It is one of the most effective threshold inhibitors for carbonate scale under high-temperature and high-alkalinity conditions, remaining effective up to about 350 °C and at pH values where many other inhibitors lose performance.

HPMA works by threshold inhibition and lattice distortion: it adsorbs on the micro-crystals of calcium and magnesium carbonate and distorts their growth, so the deposit that does form is soft, non-adherent and easily removed by blowdown.

These properties make ZEELCHEM™ 200 well suited to low- and medium-pressure boilers, thermal (MSF) desalination, evaporators, oilfield and crude-oil dehydration systems, and alkaline cooling water programmes that run without acid feed.

KEY FEATURES & BENEFITS

- Thermal stability up to approx. 350 °C
- Outstanding $CaCO_3$ and $Mg(OH)_2$ scale inhibition at high alkalinity
- Effective at high pH without acid dosing
- Soft, non-adherent deposits removed with blowdown
- Phosphorus-free and low toxicity
- Synergistic with zinc salts and phosphonates

TYPICAL SPECIFICATIONS

Parameter	Specification	Test method
Appearance	Light-yellow to amber transparent liquid	Visual (25 °C, clear glass)
Solid content	≥ 48.0 %	Gravimetric, oven 120 °C

Parameter	Specification	Test method
Bromine value	≤ 80 mg/g	Bromination titration
Average molecular weight	400 – 800	GPC (gel permeation chromatography)
pH (1 % aqueous solution)	2.0 – 3.0	pH meter, 1 % aq., 25 °C
Density at 20 °C	≥ 1.18 g/cm ³	Density bottle / hydrometer, 20 °C

Values are typical specifications. Each consignment is supplied with a batch Certificate of Analysis (COA). Custom specifications are available on request.

APPLICATIONS

- Low- and medium-pressure boilers
- Thermal / MSF seawater desalination
- Evaporators and sugar mill evaporators
- Alkaline cooling water (no acid feed)
- Oilfield water injection
- Crude oil dehydration
- Gas scrubber water
- Detergent formulations

DOSAGE & METHOD OF USE

As a scale inhibitor in cooling water, 1 – 15 mg/L is typical. In boilers and desalination, the dose is set by feed water hardness, alkalinity, concentration factor and top brine temperature. Our technical team recommends a dose after reviewing your water analysis.

Dose with a metering pump into a point of good mixing. The product may be diluted with good-quality (soft or demineralised) water; dilute solutions should be prepared fresh. Compatible with other ZEELCHEM™ polymers and phosphonates; check compatibility before blending with strong oxidisers or cationic products.

PACKAGING

50.0 kg net HDPE carboy. Each carboy is labelled with product name, batch number, net weight and GHS hazard information.

STORAGE & SHELF LIFE

Store in closed HDPE containers in a cool, shaded, ventilated area between 5 °C and 40 °C. Avoid freezing and direct sunlight; mix gently before use if slight stratification is seen. Shelf life: 12 months in unopened packing.

SAFETY & HANDLING

	Signal word: WARNING H315: Causes skin irritation. H319: Causes serious eye irritation.
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Mildly acidic polymer solution. Use goggles and gloves; avoid contact with eyes and prolonged skin contact. Rinse spills with water. Refer to the ZEELCHEM™ SDS (GHS format) before handling. Full information is given in the ZEELCHEM™ Safety Data Sheet (SDS/MSDS).

QUALITY & REGULATORY

- Manufactured under an ISO 9001:2015 quality management system; ISO 22000:2018 and ISO 14001:2015 certified.
- Batch traceability with retained samples; COA with every consignment.
- SDS prepared to GHS (UN Rev. 10), ISO 11014, Indian MSIHC Rules 1989 (Schedule 9), EU REACH Annex II and US OSHA HCS formats.
- Transport: Not regulated as dangerous goods (ADR / IMDG / IATA).

The information in this data sheet is based on our present knowledge and experience and is given in good faith. It does not constitute a warranty of specific properties or suitability for a particular application. Users should carry out their own tests. ZEEL PRODUCT accepts no liability for use outside our recommendations.