



# HYDRABOND<sup>®</sup> HB-2802

## *Cationic emulsion polymer for flocculation in water treatment*

### Description

HYDRABOND<sup>®</sup> HB-2802 is a general purpose emulsion polymer used for water clarification and sludge dewatering in industrial and municipal water treatment. HB-2802 is characterised as a high solids, high charge, high molecular weight cationic emulsion polymer.

### Product Benefits

- » Fast activation after make-down
- » High molecular weight for robust floc formation
- » High solids for economical use
- » High charge for improved colloidal solids removal

### Product Use

HYDRABOND HB-2802 is a cationic emulsion polymer with a range of uses in water treatment including:

- » primary coagulant (single shot chemistry)
- » primary flocculant for DAF and clarifier
- » thickening and dewatering of sludge

HB-2802 can be used as a traditional polymer to flocculate solids in primary treatment as well as thicken and help dewater solids in dewatering applications.

HB-2802 has been designed to provide an alternative to traditional inorganic coagulants such as alum and PAC in DAF applications. Its main goal is to reduce the cost of operation while producing clear discharge water. The advantages are numerous including no additional sludge production (inorganic coagulants produce their own sludge), no effect on pH (inorganic coagulants consume alkalinity), not dose sensitive so an overdose has no effect on discharge quality (organic and inorganic coagulants can be dose sensitive), single shot chemical so easy to monitor and control, less product handling, and it is non-dangerous providing easy handling and storage (many inorganic coagulants are Class 8 corrosive dangerous goods).

### Product Activation

HB-2802 should be made-down and activated at 0.8–1.2% strength before use with purpose built make-down equipment. Activation outside this range may reduce product effectiveness leading to higher than expected dose rates. HB-2802 can be used immediately

### Properties

Form:	Liquid (emulsion)
Colour:	Off-white to tan-cream
SG:	1.05 ± 0.05
pH:	5 ± 0.5 (1% solution)
Viscosity:	1,200 cP neat. 1,400 cP @ 1%

after activation although a 10 minute aging time is recommended for optimum performance. Post dilution to lower strengths in holding tanks after activation is suitable although solution stability will be reduced.

High quality make-up water, low in hardness and free of turbidity, with low ferrous iron concentrations (< 0.2 mg/L) and low residual chlorine (< 0.5 mg/L) is recommended. To minimise polymer hydrolysis and improve the stability of the final solution, the pH can be adjusted down to 5.5 if needed. A 1% solution at pH 5–5.5 should be stable for up to 48 hours. Weaker solutions with higher pH values may begin to deteriorate after a few hours.

### Product Application

An activated solution of HB-2802 can be dosed as made-up. Alternatively in-line post dilution by 5–20 times, just prior to application can be used as this may improve mixing and ensure optimum dose rates.

Dose rates and dose locations are best determined by jar testing and on-site optimisation. When HB-2802 is used as a primary coagulant alone in DAF applications neat product dose rates of 50–200 mg/L are common. Application should be in a medium shear environment as far upstream as possible before the DAF to allow sufficient contact between HB-2802 and the solids in the water phase.

When applied as a flocculant (after the addition of a coagulant), dose rates between 5–50 mg/L of neat HB-2802 are typical. Dosing into purpose built flocculating chambers or close to the final solids/liquid separation device is recommended, since chemical

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flocs produced by coagulant/polymer combinations are shear sensitive and can break apart if traversing long pipe lengths or in high shear mixing chambers.

For sludge dewatering, application rates between 6–12 kg/tonne dry solids of HB-2802 are common. The dosing point should be as close to the sludge dewatering unit as possible while still achieving good mixing. Dosing with diluted solutions of HB-2802 will improve mixing and may lower dose rate. Using two separated dose points may also reduce overall consumption.

Spills of neat HB-2802 should firstly be wiped up and any remaining product removed using bleach, salt, sawdust or absorbers, before rinsing the area with water. Do not use water on neat spills of HB-2802 as the area will become very slippery and clean up will be difficult. Do not let any spills (or any hosing of spills) enter the stormwater system.