



# HYDRABOND<sup>®</sup> HB-2555

***Cationic powder polymer for flocculation and dewatering in water treatment***

## Description

HYDRABOND<sup>®</sup> HB-2555 is a general purpose cationic powder polymer used for water clarification, sludge thickening and sludge dewatering in industrial and municipal water treatment. HB-2555 is characterised as being a high molecular weight linear polymer of medium-high cationic charge.

## Product Benefits

- » Effective over a wide pH range (4–9)
- » High molecular weight for robust floc formation
- » Forms a large & dense floc promoting settling rates
- » Medium-high cationic charge for improved colloidal solids removal
- » Produces good quality supernatant when used for sludge dewatering

## Product Use

HYDRABOND HB-2555 is a cationic powder polymer with a range of uses in water treatment including:

- » primary coagulant (single shot chemistry)
- » primary flocculant for DAF and clarifier
- » sludge thickening using gravity settling, gravity belt, rotary drum and centrifuge
- » sludge dewatering using belt press, screw press, centrifuge and plate & frame separators

HB-2555 can be used as a single shot chemistry in DAF applications, thus providing an alternative to traditional inorganic coagulants such as alum and PAC. 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-2555 should be made-down and activated at a strength between 0.1–1.0% with purpose built make-down equipment. For general application, Hydroflux recommends make-down at 0.2%.

## Properties

Form:	Powder
Colour:	Off-white
Bulk density:	0.85
Viscosity:	300 cP (0.25 % solution)

The dissolution speed of HB-2555 is between 30–90 minutes dependent on agitation speed, make-down strength and water temperature. Higher agitation speeds, higher water temperature and lower make-down strength contribute to lower dissolution times.

HB-2555 powder should be added slowly to a vortex or highly turbulent area of the polymer make-down tank. The aim is to wet (or hydrate) each polymer grain individually to avoid their agglomeration into a mass of dry polymer surrounded by a viscous gel, and to stop the formation of ‘fish eyes’.

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 0.5% 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

A solution of HB-2555 can be dosed as made up. Alternatively in-line post dilution by 5–20 times, just prior to application may improve polymer/suspended solids mixing and ensure optimum dose rates.

Dose rates and dose locations are best determined by jar testing and on-site optimisation. Dosing with diluted solutions of HB-2555 will improve mixing. Using two separated dose points may reduce overall consumption.

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When HB-2555 is used as a primary coagulant alone in DAF applications, product dose rates of 20–80 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-2555 and the solids in the water phase.

When HB-2555 is used as a primary flocculant, product dose rates of 2–25 mg/L are expected. Dosing into purpose built flocculating chambers or close to the final solids/liquid separation device is recommended, since chemical 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 applications the dose rate is highly dependent on the type of sludge to be treated. Primary sludge may require 2–5 kg/dry tonne sludge, while secondary and digested sludge may require 2–10 kg/dry tonne sludge. The dosing point should be as close to the sludge dewatering unit as possible while still achieving good mixing.

For sludge thickening applications, and dependent on the type of sludge to be treated, dose rates between 0.5–5 kg/dry tonne sludge is expected.

Spills of neat HB-2555 should be swept up and placed in a bag or container ready for disposal. Do NOT wash or hose spills with water as the resultant area will become very slippery and product clean up will be more difficult and time consuming. Do not let any spills (or the resultant water from the hosing of spills) enter the stormwater system.