TECHNICAL DATA SHEET

Carbosperse™ K-775 and K-776 Acrylate Copolymers

GENERAL

Carbosperse K-775 and K-776 are a family of water soluble, partially neutralized, acrylic copolymers supplied as water white to amber, clear to slightly hazy solutions in water. These polymers provide high quality, reliable deposit control performance in many different applications when used alone or as part of formulations that may include corrosion inhibitors, microbiocides, and other additives.

Carbosperse K-775 acrylate copolymer is primarily used as a component of phosphate-based, zinc-based, and all-organic cooling water treatment (CWT) programs. Carbosperse K-775 is particularly effective at controlling deposition of phosphorus-based salts, stabilizing metal ions (iron, zinc), and dispersing particulate matter (e.g., iron oxide). Carbosperse K-776 acrylate copolymer as additive in boiler water treatment formulations primarily functions as a high performance iron oxide and general purpose dispersant and sludge conditioner.

FEATURES AND BENEFITS

The collective attributes of Carbosperse K-775 and K-776 acrylate copolymers as additives in cooling and boiler water treatment formulations, respectively include:

	Features	Benefits
•	Excellent calcium phosphate inhibition	Reduce the formation of calcium phosphate and associated fouling and thereby enhancing corrosion inhibition
•	Effective at low dosages	Provide protection at suboptimal dosages which could occur during upsets or periods of underfeeding
•	Effective dispersant	Reduce the deposition of particulate matter and hardness on heat transfer surfaces
•	Compatible with most water treatment chemicals	Provide formulating latitude and prolonged shelf life
•	Excellent calcium ion tolerance	Resist the formation of insoluble calcium salts and thereby are well suited for use in high hardness waters and afford more protection in the event of system upsets (e.g., overdosing)
•	Hydrolytically stable over broad pH range	Provide broad range of formulating latitude and excellent shelf life as supplied and as formulation component
•	Resist loss of activity in the presence of soluble iron	Perform in systems where soluble iron is present
•	Consistent product quality	Ensure predictable performance
•	Relatively nontoxic	No unusual handling or environmental concerns

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Carbosperse K-775 acrylate copolymer attributes specific to its use as a CWT program formulation component include:

	Features	Benefits
•	Effective calcium phosphonate inhibition	Broadens the operating ranges (high pH, alkalinity, hardness, and temperature) of CWT programs by maintaining phosphonates in solution where they would otherwise precipitate
•	Excellent metal ion stabilizer	Extends operating ranges of zinc-based cooling water treatment programs
•	Compatible with chlorine	Suitable for use where chlorination is used to control microbiological fouling
•	High total solids and active polymer content	Lower transportation and handling costs

APPLICATIONS

Carbosperse K-775 copolymer controls phosphorus-based salts, stabilizes metal ions, and disperses particulate matter as high performance component of cooling water treatment programs. Carbosperse K-776 acrylate copolymer is a high performance iron oxide and general purpose dispersant and sludge conditioning agent component of FDA & USDA approved boiler water treatment programs.

TYPICAL PROPERTIES AND CHARACTERISTICS

Carbosperse K-775 and K-776 copolymers are water soluble, partially neutralized, acrylic copolymers supplied as water white to amber, clear to slightly hazy solutions in water. The typical properties and characteristics of these copolymers include:

Parameter	K-775	K-776
Total solids, % [(a)]	50	37
Active solids, % [(b)]	48	30.6
Neutralization, % [(c)]	10 to 30	20 to 40
pH	3.5	4.8
Viscosity, cP at 25°C	500	210
Acid number (mg KOH/g dry polymer) [(d)]	470	240
Specific gravity	1.23	1.2

(a) Determined via Lubrizol's automated computerized microwave oven procedure
(b) Active solids = total solids - counter ions (sodium) from post polymerization neutralization with sodium hydroxide
(c) Percent neutralization of available carboxylic acid
(d) Measure of free acid present - determined by a potentiometric titration procedure on an as-supplied product basis

For more information, contact Lubrizol or go to the web site noted on the preceding page.