

ACUMER™ 3100

Iron Oxide Dispersant

Typical Properties

These properties are typical but do not constitute specifications.

Appearance	Clear solution to slightly hazy
Chemical nature	Carboxylate/Sulfonate/Nonionic functional terpolymer
Average molecular weight	4500 (Mw)
Total solids (%)	43.5
Active solids (%)	39.5
pH as is (at 25°C)	2.5
Bulk density (at 25°C)	1.20
Brookfield Viscosity (mPa.s/cps at 25°C)	500
Neutralization	0.13g of NaOH (100%) per g of ACUMER 3100

Chemistry and Mode of Action

ACUMER 3100 terpolymer contains three functional groups: strong acid (sulfonate), weak acid (carboxylate) and a nonionic that provide optimal dispersancy for most particules under a broad range of operating conditions:

- ACUMER 3100 carboxylate groups are most strongly attracted to particles surfaces, allowing strong dispersant absorption onto particles.
- ACUMER 3100 sulfonate groups are only weakly attracted to the particle surface and retain some residual negative charge to provide repulsion preventing particles from aggregating into larger particles which can settle and deposit on tube surfaces and low flow areas.
- ACUMER 3100 nonionic groups further enhance dispersancy by providing steric repulsion between particles.

Dispersancy Performance

ACUMER 3100 polymer is an outstanding dispersant, far superior to other types of polymers especially for dispersing both dried and hydrated iron oxide, hydroxyapatite and calcium carbonate. It is also an excellent stabilizer for corrosion inhibitors such as phosphate, phosphonates and zinc.

Applications

- Dispersant and stabilizer for use in all cooling water programs

ACUMER 3100 terpolymer excels in the harshest of cooling water conditions, such as extremely high or low Ryznar Indexes, high iron concentrations, high levels of zinc or phosphate added as treatment to the system. ACUMER 3100 is particularly recommended in advanced all-organic programs. The product will maintain excellent heat transfer by its superior dispersancy and, in addition, will help corrosion inhibition by controlling film formation of the organic corrosion inhibitors onto metal surfaces.

- Control of boiler sludge

ACUMER 3100 terpolymer is the product of choice for boiler water treatment formulations as it provides unsurpassed control of boiler sludge. The polymer makes it possible to easily transport iron with calcium and phosphate containing sludges for removal during blowdown. Superior iron oxide dispersant, ACUMER 3100 is particularly recommended to control hydrated iron oxide in condensate return line.

Thermal/Hydrolytic Stability

ACUMER 3100 terpolymer is highly resistant to breakdown in aqueous solution under conditions of high temperature, pressure and pH. As a safety measure ACUMER 3100 is not recommended for boilers operating at pressure greater than 900 psig.

ACUMER 3100 is very resistant to hydrolysis as well. The product does not lose its performance capability after storage at pH 13.5 for 6 months at ambient temperature.

Approval

ACUMER 3100 is TUV approved for use in boilers under the reference: 06-KG-66.

Material Safety Data Sheets

Rohm and Haas Company maintains Material Safety Data Sheets (MSDS) on all of its products. These contain important information that you may need to protect your employees and customers against any known health and safety hazards associated with our products. We recommend you obtain copies of MSDS for our products from your local Rohm and Haas technical representative or the Rohm and Haas Company. In addition, we recommend you obtain copies of MSDS from your suppliers of other raw materials used with our products.

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