PERFORMANCE CHEMICALS

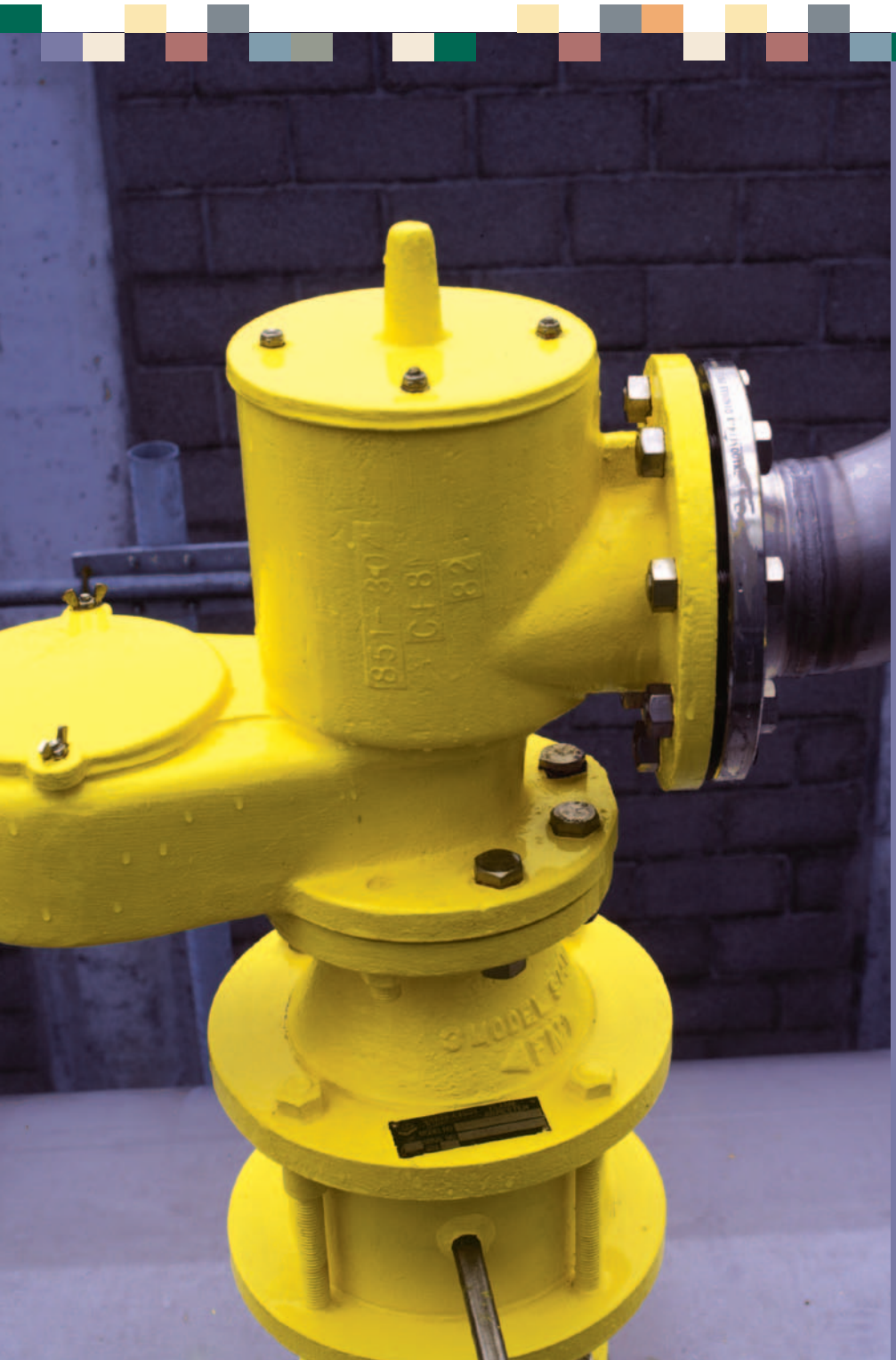
Busan® 11-M1

Multifunctional pigment

Buckman

Commitment makes the best chemistry.

Proven performance. Outstanding quality.



Add the confidence that years of proven performance can offer.

Busan 11-M1 is the commercial form of barium metaborate monohydrate. The product is a multifunctional pigment manufactured using a unique process to provide quality performance for the coatings customer. Busan 11-M1 is ≤ 90% active calculated as $BaB_2O_4 \cdot H_2O$. Busan 11-M1 is the only EPA-registered barium metaborate on the market today.

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Corrosion/early rust inhibition

Use levels of Busan 11-M1, when used as a corrosion inhibitor, are dependent upon the formulation and performance required. For industrial, solvent-based coatings, use levels of 2.0–10.0% based on total formula weight are suggested. Use levels of 4.5–9.0% based on the total formula weight are recommended for latex paints. Use levels below 4.5% of total formula weight provide excellent flash- and early-rust inhibition only. Busan 11-M1 is not a vapor-phase inhibitor and will require tipping the can to coat the lid and upper surface of the metal can to ensure protection.

Tannin stain blocking

Busan 11-M1 can be used as a tannin stain blocking agent in latex- and solvent-based primers and topcoats. Use levels of 0.25–1.0% based on total formula weight are recommended for this application. Use of an alkyd modifier can provide additional wetting. This will be beneficial when formulating latex primers and stains.

Mold inhibition

Busan 11-M1 provides protection from mold in latex systems when used at levels of 4.5–13.3% based on total formula weight.

Higher use levels are required to enable mold resistance for oil- and alkyd-based coatings, because these coatings provide an excellent food source for mold. Use levels of 8–10% based on total formula weight are recommended. Busan 11-M1 is inorganic; therefore, leaching from dry paint film is minimized versus other competitive organic fungicides.

Package preservation

Busan 11-M1 has performed well as a package preservative in latex paints when used at levels of 0.3–0.5% on formula weight. Busan 11-M1 has been reported to inactivate enzymes. Buckman recommends the formulator conduct ladder studies to determine the optimum use levels in their formulations. *Not approved for use in California.*

Flame retardancy

Busan 11-M1 performs well as a flame retardant in both solvent- and water-based coatings containing a halogen donor, such as chlorinated paraffin. Busan 11-M1 can replace 100% of the antimony trioxide present in most formulations. In certain systems the two can function synergistically. Use levels of 2.0–9.0% for flame retardancy are recommended but will vary depending on the resin and the halogen donor used.

Metal stabilization

Busan 11-M1 functions as a stabilizer for several metals and metal salts, such as copper oxide and metallic zinc. Busan 11-M1 reduces the rate at which zinc metal converts to zinc oxide or zinc carbonate. Because Busan 11-M1 reduces the reactivity of metallic zinc, better adhesion is observed when coating galvanized steel. Use levels for metal stabilization will vary based on resin used and performance required. However, 4–12% is an acceptable range, with higher levels giving better adhesion and performance.

Formulating guidelines

Buckman recommends using a non-phosphate anionic dispersant for latex coatings, such as Busperse® 39, QR 681, or Tamol 850, at levels of 0.5–1.3%. For latex coatings we also strongly recommend that a nonionic surfactant like Triton X-100, Triton X-405, CO-630, or CF-10 be used to minimize long term stability.

An additional consideration in latex coatings is to allow the grind paste to cool to less than 100°F. A hot grind paste containing reactive pigments may scavenge significantly higher levels of dispersants or surfactants, thereby causing the emulsion to destabilize. Associative thickeners may have a greater efficacy due to the alkalinity of Busan 11-M1. Care should be taken when formulating.

Typically, there are no concerns when formulating solvent-based coatings with Busan 11-M1 other than utilizing a good dispersant, such as Busperse 47 at 0.2–0.4%.

Typical product characteristics

Appearance	white amorphous crystalline powder
Specific gravity	3.35 g/cm^3
Density	27.5 lb/gal
Refractive index	1.55–1.60
Oil adsorption	30
Solubility	0.3% maximum ambient temperature
Solubility	0.4% in hot water
pH of saturated solution @ 70°F	9.8–10.3

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