BROCHURE

Firebrake® ZB to replace antimony oxide

A partial or complete replacement of antimony oxide in flame retardant formulations

Flame retardant synergisy

For most flame retardant formulations where antimony oxide is conventionally used, it is shown that a partial replacement with *Firebrake* ZB results in improved fire test performance. This has especially been investigated extensively in exible PVC and the halogen-containing formulations for other polymer systems including polyolefins, polyamides, epoxies, and many elastomers. If no performance improvement is required, the synergy of *Firebrake* ZB and antimony oxide can be used to reduce the total loading of these two additives with no negative impact on flame performance. Reduced total loading logically translates to reduced formulation cost assuming similar pricing for these two additives.

Lower cost *Firebrake* ZB

While partial replacement of antimony oxide is justified by synergy with *Firebrake* ZB even at similar pricing for the two additives, *Firebrake* ZB has been a lower cost additive than antimony oxide in recent years, which strengthens the cost saving for partial replacement of antimony oxide with *Firebrake* ZB and encourages enhanced or complete replacement of antimony oxide with *Firebrake* ZB.

Other performance improvements

In addition to improved flame test performance and reduced formulation costs, *Firebrake* ZB offers a range of performance enhancements depending on the end-use application and polymer system that it is used in:

- Smoke suppression for both halogen containing and halogen-free systems
- Improved char formation for both halogen containing and halogen-free systems
- Improved ceramic formation for halogen-free systems
- Afterglow suppression for both halogen containing and halogen-free systems
- Anti-tracking for wire and cable applications and electrical parts

About U.S. Borax

U.S. Borax, part of Rio Tinto, is a global leader in the supply and science of borates—naturally-occurring minerals containing boron and other elements. We are 1,000 people serving 650 customers with more than 1,800 delivery locations globally. We supply around 30% of the world's need for refined borates from our world-class mine in Boron, California, about 100 miles northeast of Los Angeles.

About 20 Mule Team products

U.S. Borax produces the *20 Mule Team*® borates family of products from naturally occurring minerals and have an excellent reputation for purity and safety when used as directed. Borates are key ingredients in a number of industrial applications including fiberglass, glass, ceramics, batteries and capacitors, wood preservatives, and flame retardants.

High quality, high reliability, high performance borate products. It's what we're known for.

20 MULE TEAM BORAX™ RioTinto

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