TESSENDERLO Kerley

AMMONIUM BISULFITE SOLUTION (ABS)

FOR THE DESTRUCTION OF CYANIDE VIA THE INCO SO_2/AIR PROCESS

When it comes to effective liquid sulfur-based mining reagents, we provide high quality products and technical expertise to support your operations in-plant. ABS is an aqueous ammonium bisulfite solution that effectively neutralizes cyanide in the Inco SO_2/Air process.

- **Field Tested and Proven** - ABS is currently in use in numerous mines
- **Ease of Handling** – shipped as a liquid in bulk; no need to dissolve reagent prior to use
- **High Strength** - 42% SO_2 content

WHY USE TKI ABS?

- **Flexible** - Can be applied to the treatment of both cyanide solutions and slurries
- **Fast and Effective** - Can achieve low total cyanide (CN) in a single stage
- **Proven** – Over 120 applications since 1980
- **Robust** - Can treat solutions with high soluble metal concentrations
- **Thorough** - Will oxidize free cyanide and all cyanide complexed with copper, nickel, zinc, silver and cadmium
- **Strong** - Has significantly more SO_2 available than MBS solutions
- **Safe** – No mixing of dry reagents, or production/use of Caro's acid
- **Service** – We have in-house technical expertise to help you get the most from ABS; we can and will support your conversion with field support in mill

TYPICAL PROPERTIES

Active Ingredient (NH_4HSO_3)	63% – 67%
Relative Density (g/cm^3)	1.350 – 1.390
Relative Density (lbs/gal)	11.4 – 11.55
Boiling Point (°F)	228 – 230
Boiling Point (°C)	-30 – 15.6
pH	5.0 – 5.8
Color	Straw Yellow

Process Chemistry – The Inco Reaction:

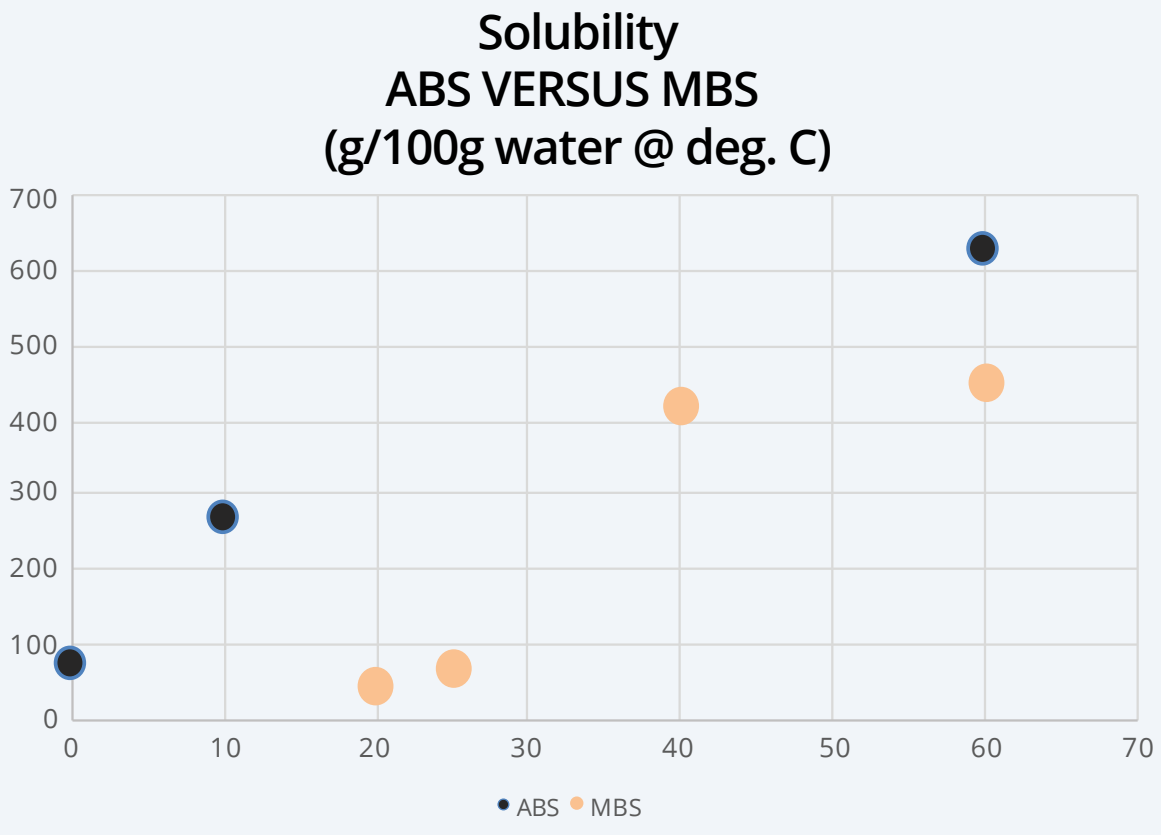
$$CN_{WAD} + SO_2 + O_2 + H_2O = OCN^- + H_2SO_4$$

From ABS

From Air

ABS – THE EFFECTIVE AND FLEXIBLE CHOICE

Treatment Process	Iron Cyanide Removal	WAD Cyanide Removal	Slurry Application	Solution Application
ABS Inco (SO_2/Air)	✓	✓	✓	✓
Hydrogen Peroxide	✓	✓		✓
Caro's Acid		✓	✓	
Alkaline Chlorination	✓	✓		✓
Ozone		✓		✓
Iron Precipitation	✓	✓	✓	✓
Natural Degradation	✓	✓	✓	✓



PACKAGING AND HANDLING

- ABS is a water-based ammonium bisulfite solution, available in bulk tank trucks or railcars
- Store in well-ventilated areas. Do not store combustibles nearby
- Keep away from any sources of heat or flame
- Avoid contact with skin and eyes
- Use ABS in a well-ventilated area, and wash thoroughly after handling
- Observe all safety precautions shown on the product label and in the safety data sheet

Materials of construction suitable for storing and handling ABS*:

- Stainless Steel
- Polypropylene
- Polyethylene

*temperatures [up to 49°C (120°F)]

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