

# JMN SPECIALTIES, INC.

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## PRODUCT BULLETIN

### PI-170

### Treatment for Pyrophoric Iron

#### General Description

**PI-170** is a non-hazardous perborate based liquid formulated to treat compounds that may contain sulphur in a reactive form. **PI-170** treats reactive sulphur compounds with a stabilized oxidizing agent to produce a different compound which does not contain sulphur in a reactive form. **PI-170** will effectively decontaminate and clean a vessel containing surfaces in contact with, or subject to being in contact with, sulfides, mercaptans, sulfites, reactive multi-sulphur compounds and/or mixtures thereof.

**PI-170** functions by treating the surface of pyrophoric iron sulfide with a oxidizing agent to form a film on the surface of the insoluble iron sulfide whereby the film shields the surface of the iron sulfide from an environment containing oxygen in the gas phase thereby preventing spontaneous ignition of the pyrophoric iron sulfide. The inorganic persulfates also react with insoluble iron sulfide and water-soluble hazardous sulphur containing compounds to produce water soluble sulfates. There are no by-products of the reaction between inorganic persulfates and reactive sulphur which are hazardous or environmentally offensive.

#### Typical Application (2,250 gallon vessel)

100 gallons of the **PI-170** concentrate solution together with 2,150 gallons of de-ionized water is added to the vessel containing the residual crude oil / hazardous sulphur containing compounds. A buffering material (Soda Ash) is added to the vessel as necessary to adjust the pH of the solution in the vessel to a value in the range of from about 7 to about 8. At this point the concentration of **PI-170** in the vessel is 0.4% active oxidizer by weight of solution or about 4000 parts oxidizer per million parts of solution.

The vessel and its contents are heated to a temperature of 180F and the contents of the vessel are continuously circulated to promote contact between the **PI-170** solution and the hazardous sulphur containing compounds. The aqueous content of the vessel is sampled as soon as practicable and analysed for active oxidizer. The analysis is conducted to enable maintenance of an active concentration of oxidizer at a value of at least 500 parts per million.

The treating solution is drained from the vessel after a period of contact of about 2 to 3 hours at 180F during which time the concentration of oxidizer is maintained at a value in the range of from about 500 parts per million to about 2000 parts per million. At this point all soluble, hazardous sulphur containing compounds will have been converted either to elemental sulphur or to the sulfate ion. In addition, all insoluble, hazardous sulphur containing compounds, such as FeS, will have been coated with a layer of iron oxide to shield and thereby inactivate the insoluble hazardous sulphur containing compounds.

#### Physical Properties

Appearance	Clear liquid
pH	6.0 – 6.8
Boiling Point	212 F
Specific Gravity	1.03

#### Availability

**PI-170** is available in UN approved 5 gallon pails, 55 gallon drums and bulk quantities.

#### Handling

Observe warning label on containers. Normal precautions for industrial chemicals apply.

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