SPECIAL NOTES FOR METALS

1. Stainless steels have a high corrosion rate when chlorides are present in permanganate solutions. They are not compatible with hydrochloric acid.

2. An accelerated corrosion rate was found when nitric acid was used to acidify permanganate solutions.

3. Compatible at room temperature only.

4. Only “FAIR” or “MODERATE” life when used with permanganate solutions. Short-term use would be acceptable.

5. Unsuitable with alkali, such as sodium hydroxide or potassium hydroxide. Should not be used with alkaline permanganate solutions.

6. “FAIR” with permanganate solutions.

7. “MODERATE” life below 100 °F/ 37 °C.

8. Incoloy 840 failed when used as the “sheath” material for an immersion heater in a 2% to 4% permanganate solution.


The information contained herein is accurate to the best of our knowledge. However, data, safety standards and government regulations are subject to change, and the conditions of handling, use or misuse of the product are beyond our control. Carus Corporation makes no warranty, either expressed or implied, including any warranties of merchantability and fitness for a particular purpose. Carus also disclaims all liability for reliance on the completeness or confirming accuracy of any information included herein. Users should satisfy themselves that they are aware of all current data relevant to their particular use(s).
PLASTICS AND OTHER NON-METALS
Permanganate solutions can affect the strength, flexibility, surface appearance, or color of plastics. The chemical attack that could cause these changes might include: (1) oxidation of the polymer chain, (2) oxidation of the functional groups in or on the chain, or (3) depolymerization.

### Fibers
- Acetates: YES
- Acrylis: YES
- Cotton: NO
- Nylon (polyamides): NO
- Orlon: NO
- Paper: NO
- Polyesters: YES¹
- Silk: NO
- Wool: NO

### Hose, Tubing, Pipe, and Gasket Materials
- Asbestos: NO
- Chlorinated Polyvinyl Chloride (CPVC): YES³
- Ethylene Propylene Rubber (EPR): NO
- Ethylene Propylene Terpolymers (EPT): YES⁵
- Ethylene Propylene Diene Monomer (EPDM): YES
- Hyac: NO
- Hypalon: YES
- Natural Rubber: NO
- Nitrobutyl Rubber: NO
- Nitrile Butadiene Rubber (NBR): NO⁶
- Neoprene: NO
- Norprene: YES
- Penton: YES
- Polyethylene Oxides (PPO): YES
- Polyvinylidene Chloride (Tygon): YES
- Polyvinylidene Fluoride (PVDF): YES⁷
- Styrene Butadiene Rubber (SBR):
  - Buna N: NO
  - Buna S: NO
- Teflon FEP: YES⁷
- Teflon TFE: YES
- Viton: YES⁵

### Tank, Tank Linings, Pump, and other Equipment Construction Materials
- ABS Plastic: YES
- Asphaltic Resin: NO
- Ceramic: YES
- Epoxy Resin: YES¹
- Furan Resin: YES¹
- Glass: YES
- Lucite (acrylic resin): YES
- Phenol-formaldehyde Resin: NO
- Phenolic Resin: YES¹
- Styrene Copolymers: YES¹
- Polyallomer: YES
- Polybutylene: NO
- Polycarbonate: NO
- Polyethylene: YES³
- Polypropylene: YES³
- Polyurethane: YES
- Polyvinyl Chloride I: YES⁴
- Polyvinyl Chloride II: NO

### Oils, Greases, and Lubricants
All oils, greases, and lubricants must be tested for compatibility with potassium permanganate.

When unknown, assume that potassium permanganate will react with these compounds resulting in fire and/or explosion.

### SPECIAL NOTES FOR PLASTICS AND OTHER NON-METALS
1. Temperatures up to 200 °F/ 93 °C.
2. Discolored at 140 °F/ 60 °C.
3. Temperatures of 68 - 176 °F/ 20-80 °C.
4. Temperatures up to 140 °F/ 60 °C.
5. Temperatures of 68 - 140 °F/ 20-60 °C.
6. Temperatures to 68 °F/ 20 °C.
7. Temperatures of 68 - 248 °F/ 20-120 °C.

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