

Trade Name: **METSO PENTABEAD® 20 Sodium Metasilicate, pentahydrate**

Date Prepared: **09/12/06**

Page: 1 of 5

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

*Product name:* METSO PENTABEAD® 20 Sodium Metasilicate, pentahydrate  
*Product description:* Granular sodium metasilicate, pentahydrate  
*Manufacturer:* PQ Corporation  
P. O. Box 840  
Valley Forge, PA 19482 USA  
*Telephone:* 610-651-4200  
*In case of emergency call:* 610-651-4200  
*For transportation emergency*  
*Call CHEMTREC:* 800-424-9300

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

<i>Chemical and Common Name</i>	<i>CAS Registry Number</i>	<i>Wt. %</i>	<i>OSHA PEL</i>	<i>ACGIH TLV</i>
<b>Silicic acid, disodium salt; Disodium trioxosilicate; Sodium metasilicate</b>	<b>6834-92-0</b>	<b>~58%</b>	<b>Not Established*</b>	<b>Not Established*</b>
<b>Water</b>	<b>7732-18-5</b>	<b>~42%</b>	<b>Not Established</b>	<b>Not Established</b>

\* Manufacturer's recommended exposure limit is 2 mg/m<sup>3</sup> Ceiling Limit.

## 3. HAZARDS IDENTIFICATION

*Emergency Overview:* White, odorless, granular powder. Corrosive to eyes, skin, and digestive tract. Dust corrosive to respiratory tract. Due to high pH of product, release into surface water is harmful to aquatic life. Noncombustible. Reacts with acids and some organics.

*Eye contact:* Corrosive. Causes eye burns.  
*Skin contact:* Corrosive. Causes skin burns.  
*Inhalation:* Dust corrosive to respiratory tract.  
*Ingestion:* Corrosive. Causes burns to mouth, esophagus, and stomach.  
*Chronic hazards:* No known chronic hazards. Not listed by NTP, IARC or OSHA as a carcinogen.  
*Physical hazards:* Can etch glass if not promptly removed.

## 4. FIRST AID MEASURES

*Eye:* In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.  
*Skin:* In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse. Thoroughly clean shoes before reuse.

*Inhalation:* Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

*Ingestion:* If swallowed, DO NOT induce vomiting. Get medical attention immediately. If victim is fully conscious, give a cupful of water. Never give anything by mouth to an unconscious person.

---

## **5. FIRE FIGHTING MEASURES**

*Flammable limits:* This material is noncombustible.

*Extinguishing Media:* This material is compatible with all extinguishing media.

*Hazards to fire-fighters:* See Section 3 for information on hazards when this material is present in the area of a fire.

*Fire-fighting equipment:* The following protective equipment for fire fighters is recommended when this material is present in the area of a fire: chemical goggles, body-covering protective clothing, chemical resistant gloves, and rubber boots.

---

## **6. ACCIDENTAL RELEASE MEASURES**

*Personal protection:* Wear chemical goggles, body-covering protective clothing, chemical resistant gloves, and rubber boots, NIOSH-approved dust respirator where dust occurs. See section 8.

*Environmental Hazards:* Sinks and mixes with water. High pH of this material is harmful to aquatic life, see Section 12.

*Small spill cleanup:* Carefully shovel or sweep up spilled material and place in suitable container. Avoid generating dust. Use appropriate Personal Protective Equipment (PPE). See section 8.

*Large spill cleanup:* Keep unnecessary people away; isolate hazard area and deny entry. Do not touch or walk through spilled material. Carefully shovel or sweep up spilled material and place in suitable container. Avoid generating dust. Use appropriate Personal Protective Equipment (PPE). See section 8. In case of contact with water, prevent runoff from entering into storm sewers and ditches which lead to natural waterways. Neutralize contaminated area and flush with large quantities of water. Comply with applicable environmental regulations.

*CERCLA RQ:* There is no CERCLA Reportable Quantity for this material. If a spill goes off site, notification of state and local authorities is recommended.

---

## **7. HANDLING AND STORAGE**

*Handling:* Do not get in eyes, on skin, or on clothing. Do not breathe dust. Keep container closed. Promptly clean up spills. Wash thoroughly after handling.

*Storage:* Store at temperatures below 150°F (65°C). Keep containers closed. Store in clean, tightly closed steel, fiber, or plastic containers. Separate from acids, reactive metals, and ammonium salts. Do not store in aluminum, fiberglass, copper, brass, zinc or galvanized containers. This product can absorb water from the air. In case of high humidity or storage for extended periods of time, use plastic bags to enclose product containers to

avoid caking. Packaged inventory should be used on a first in, first out (FIFO) basis. Bulk storage bins should be painted white or aluminum to minimize sun-heat absorption which can cause melting of this material at about 160°F.

---

## **8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

<i>Engineering controls:</i>	Use only with adequate ventilation. Keep containers closed. Safety shower and eyewash fountain should be within direct access.
<i>Respiratory protection:</i>	Use a NIOSH-approved dust respirator where dust occurs. Observe OSHA regulations for respirator use (29 C.F.R. §1910.134)
<i>Skin protection:</i>	Wear body-covering protective clothing and gloves.
<i>Eye protection:</i>	Wear chemical goggles.

---

## **9. PHYSICAL AND CHEMICAL PROPERTIES**

<i>Appearance:</i>	Granular powder.
<i>Color:</i>	White.
<i>Odor:</i>	Odorless or musty odor.
<i>pH:</i>	Approximately 14
<i>Bulk density:</i>	Approximately 49 lbs/ft <sup>3</sup> untamped, 59 lbs/ft <sup>3</sup> tamped.
<i>Solubility in water:</i>	Soluble.

---

## **10. STABILITY AND REACTIVITY**

<i>Stability:</i>	This material is stable under all conditions of use and storage.
<i>Conditions to avoid:</i>	None.
<i>Materials to avoid:</i>	Generates heat when mixed with acid. May react with ammonium salt solutions resulting in evolution of ammonia gas. Flammable hydrogen gas may be produced on contact with aluminum, tin, lead, and zinc. Carbon monoxide gas may be produced on contact with reducing sugars.
<i>Hazardous decomposition products:</i>	Hydrogen.

---

## **11. TOXICOLOGICAL INFORMATION**

<i>Acute Data:</i>	<p>This material has not been tested for primary eye irritation potential. However, on the basis of its high degree of alkalinity, it is regarded as corrosive to the eyes.</p> <p>When this material was tested for skin corrosion/irritation potential according to OECD Guidelines Section 404, it produced dermal corrosion.</p> <p>The acute oral toxicity of this product has not been tested. When sodium silicates were tested on a 100% solids basis, their single dose acute oral LD<sub>50</sub> in rats ranged from 1500 mg/kg to 3200 mg/kg. The acute oral lethality resulted from nonspecific causes.</p>
<i>Subchronic Data:</i>	<p>In a study of rats fed sodium silicate in drinking water for three months, at 200, 600 and 1800 ppm, changes were reported in the blood chemistry</p>

*Special Studies:*

of some animals, but no specific changes to the organs of the animals due to sodium silicate administration were observed in any of the dosage groups. Another study reported adverse effects to the kidneys of dogs fed sodium silicate in their diet at 2.4g/kg/day for 4 weeks, whereas rats fed the same dosage did not develop any treatment-related effects. Decreased numbers of births and survival to weaning was reported for rats fed sodium silicate in their drinking water at 600 and 1200 ppm.

Sodium silicate was not mutagenic to the bacterium *E. Coli* when tested in a mutagenicity bioassay. There are no known reports of carcinogenicity of sodium silicates. Frequent ingestion over extended periods of time of gram quantities of silicates is associated with the formation kidney stones and other siliceous urinary calculi in humans. Sodium silicate is not listed by IARC, NTP or OSHA as a carcinogen.

---

## **12. ECOLOGICAL INFORMATION**

*Eco toxicity:*

The following data is reported for sodium silicates on a 100% solids basis: A 96 hour median tolerance for fish (*Gambusia affinis*) of 2320 ppm; a 96 hour median tolerance for water fleas (*Daphnia magna*) of 247 ppm; a 96 hour median tolerance for snail eggs (*Lymnea*) of 632 ppm; and a 96 hour median tolerance for Amphipoda of 160 ppm.

*Environmental Fate:*

This material is not persistent in aquatic systems, but its high pH when undiluted or unneutralized is acutely harmful to aquatic life. Diluted material yields dissolved silica in a form that is indistinguishable from natural dissolved silica. It does not contribute to BOD. This material does not bioaccumulate except in species that use silica as a structural material such as diatoms and siliceous sponges. Where abnormally low natural silica concentrations exist (less than 0.1 ppm), dissolved silica may be a limiting nutrient for diatoms and a few other aquatic algal species. However, the addition of excess dissolved silica over the limiting concentration will not stimulate the growth of diatom populations; their growth rate is independent of silica concentration once the limiting concentration is exceeded. Neither silica nor sodium will appreciably bioconcentrate up the food chain.

*Physical/Chemical:*

Sinks and dissolves in water.

---

---

Trade Name: **METSO PENTABEAD<sup>®</sup> 20 Sodium Metasilicate, pentahydrate**

Date Prepared: **09/12/06**

Page: 5 of 5

---

### **13. DISPOSAL CONSIDERATIONS**

*Classification:* Disposed dry/solid material is not classified as a RCRA Hazardous waste. However, disposed water/wet solutions containing this material are classified as RCRA hazardous waste if they exhibit the corrosive characteristic (pH greater than or equal to 12.5) as defined in EPA rules at 40 C.F.R. §261.22 (a)(1).

*Disposal Method:* Dispose in accordance with federal, state and local regulations.

---

### **14. TRANSPORT INFORMATION**

*DOT UN Status:* This material is a regulated hazardous material.

*UN PROPER SHIPPING NAME:* Disodium trioxosilicate

*UN HAZARD CLASS/DIVISION:* 8

*UN IDENTIFICATION NUMBER:* UN3253

*UN PACKING GROUP:* PG III

---

### **15. REGULATORY INFORMATION**

*CERCLA:* No CERCLA Reportable Quantity has been established for this material.

*SARA TITLE III:* Not an Extremely Hazardous Substance under §302. Not a Toxic Chemical under §313. Hazard Categories under §§311/312: Acute

*TSCA:* All ingredients of this material are listed on the TSCA inventory.

*FDA:* The use of sodium metasilicate is authorized by FDA as a boiler water additive for the production of steam that will contact food pursuant to 21 CFR §173.310; and as a GRAS substance pursuant to 21 CFR §184.1769a for use in washing and lye peeling of fruits, vegetables, and nuts; as a denuding agent for tripe; a hog scald agent in removing hair; and as a corrosion preventative in canned and bottled water.

---

### **16. OTHER INFORMATION**

*Prepared by:* **John G. Blumberg**

*Supersedes revision of:* **01/24/06**

THE INFORMATION ON THIS SAFETY DATA SHEET IS BELIEVED TO BE ACCURATE AND IT IS THE BEST INFORMATION AVAILABLE TO PQ CORPORATION THIS DOCUMENT IS INTENDED ONLY AS A GUIDE TO THE APPROPRIATE PRECAUTIONS FOR HANDLING A CHEMICAL BY A PERSON TRAINED IN CHEMICAL HANDLING. PQ CORPORATION MAKES NO WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED WITH RESPECT TO SUCH INFORMATION OR THE PRODUCT TO WHICH IT RELATES, AND WE ASSUME NO LIABILITY RESULTING FROM THE USE OR HANDLING OF THE PRODUCT TO WHICH THIS SAFETY DATA SHEET RELATES. USERS AND HANDLERS OF THIS PRODUCT SHOULD MAKE THEIR OWN INVESTIGATIONS TO DETERMINE THE SUITABILITY OF THE INFORMATION PROVIDED HEREIN FOR THEIR OWN PURPOSES.

---