MATERIAL SAFETY DATA SHEET

PRODUCT NAME: BORAX 5-MOL 50#  PRODUCT CODE: 16-05525-01  DATE: 10/08/93 PAGE 01

CAS #: 001330-43-4
FORMULA: Na(2)B(4)O(7)·5H(2)O
CHEMICAL FAMILY: SALTS
CHEMICAL NAME AND SYNONYMS: SODIUM TETRABORATE PENTAHYDRATE

SUPPLIERS NAME: Harcros Chemicals Inc
5200 Speaker Rd
Kansas City, KS 66106
SUPPLIERS PHONE NUMBER: 913-321-3131
TRANSPORTATION EMERGENCY PHONE NUMBER: 1-800-424-9300

S.A.R.A. INFORMATION
HAZARDS: Fire: No  Pressure: No  Reactivity: No  Acute: Yes  Chronic: Yes
PHYSICAL DATA: Mixture: No  Pure: Yes  Solid: Yes  Liquid: No  Gas: No

SECTION I  Hazardous Ingredients

<table>
<thead>
<tr>
<th>INGREDIENTS</th>
<th>PERCENT</th>
<th>AIR CONTAMINANT LEVELS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SODIUM TETRABORATE PENTAHYDRATE</td>
<td>&gt; 99</td>
<td>TWA 1 mg/m(3) ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10 mg/m(3) OSHA.</td>
</tr>
</tbody>
</table>

SECTION II  Health Hazards

Threshold Limit Value: See Section I

Potential Effects of Exposure (listed by primary routes of entry)

Eyes:
Can cause irritation.

Skin:
Can cause irritation, and with prolonged contact, dermatitis. Prolonged contact with damaged skin produce symptoms similar to those for ingestion.

Inhalation:
Dust inhalation can cause irritation of nasal and respiratory passages.

Ingestion:
Can cause nausea, vomiting, diarrhea. May affect the central nervous system, causing weakness, depression, headaches, and shock. Also skin rashes, dry skin, loss of hair and cracked lips, may occur.

Toxicity Information:
The following information is for borax, sodium tetraborate decahydrate. Oral-infant LDLo 1000mg/kg; Oral-man LDLo 700mg/kg; Oral-Sprague-Dawley rats LD(50), 4500mg/kg males, 4980mg/kg females; Oral-Long-Evans rats LD(50), 6080mg/kg males. Reproductive effects, including sterility, noted in experimental rats and dogs at feed levels of 70g/kg; no effects at feed levels of 20g/kg. Mutagenic effects noted in flies when subjected to an oral concentration of 714 ppm. Borates

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SECTION II  Health Hazards
CONTINUED
are not acute poisons and are readily dissipated through the
urine (70% in 24 hours). No evidence of serious systemic
toxicity has been demonstrated.

First aid:

Eyes:
Flush with water for 15 minutes while holding eyelids open.
Get medical attention.

Skin:
Flush with water while removing contaminated clothing and shoes.
Follow by washing with soap and water. Do not reuse clothing
or shoes until cleaned. If irritation persists, get medical
attention.

Inhalation:
Remove victim to fresh air and provide oxygen if breathing is
difficult. Give artificial respiration if not breathing. Get
medical attention.

Ingestion:
Have person take two glasses of water and induce vomiting by
putting finger in back of throat. While vomiting keep head
below hips to prevent aspiration. Do not give anything by
mouth to a drowsy or unconscious person. Get medical attention
promptly.

Other Information:

Conditions Aggravated By Exposure:
Kidney and liver disease and nerve disorders may be aggravated
by exposure to this material.

PRIMARY ROUTE(S) OF ENTRY - Inhalation (breathing), eyes,
damaged skin and ingestion (swallowing).

NOTE TO PHYSICIAN:
Gastric lavage with 5% sodium bicarbonate solution suggested
for large amounts ingested. Saline cathartic. Force fluids.
Ringer's solution or normal saline intravenously.

SECTION III  Special Protection Information

Respiratory Protection:
If needed use a NIOSH/MSHA jointly approved dust respirator,
(ask your safety equipment supplier).

Ventilation Required:
Provide sufficient mechanical (general and/or local exhaust)
ventilation to maintain exposure below TLV.

Protective Clothing:

Eyes:
Wear chemical splash goggles in compliance with OSHA
regulations or other type safety glasses permitted by OSHA.
(Consult your safety equipment supplier).

Skin:
Wear resistant gloves such as neoprene, if needed, to prevent

CONTINUED ON PAGE 03
SECTION III Special Protection Information

CONTINUED
Repeated or prolonged skin contact, wear impervious clothing and boots.

Additional Protective Measures:
Safety shower, eye bath and washing facilities should be available.

SECTION IV Fire & Explosion Hazard Data

Flash Point (Method): Will not burn.
Flammable Limits (% Volume in Air):
Upper: N/A
Lower: N/A
Extinguishing Media:
N/A Product is used as a fire retardant.
Special Fire Fighting Procedures: N/A
Unusual Fire and Explosion Hazards: N/A

SECTION V Physical Data

Boiling Point: 1575 deg. C. (Decompose)
Specific Gravity (H(2)O=1): 1.8 @ 68 deg. F
Bulk Density: 65 lbs/cu.ft.
Vapor Pressure (MM HG.): Unavailable
Vapor Density (AIR=1): N/A
Evaporation Rate (++=1): N/A
Solubility in Water: 3.74% @ 68 deg F, 50.13 @ 212 deg. F
Percent Volatile by Volume: Non-Volatile
pH: (Saturated solution 3.89% by wt.) 9.3
Appearance and Odor: Granular, white solid, no odor.

SECTION VI Reactivity Data

Stability: Stable
Incompatibility: Elemental Zirconium
Hazardous Decomposition Products: None
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SECTION VI  Reactivity Data
Hazardous Polymerization: Will not occur.

SECTION VII  Spill and Leak Procedures

Steps to be taken if material is released or spilled:

Small Spill: Sweep up material onto paper.

Large Spill: Shovel material into container. Thoroughly sweep area of spill to clean up any residual material. Avoid creation of dust.

Waste Disposal Method:

Small Spill: Package material in paper and deposit in an approved waste disposal facility in accordance with local, state, and federal regulations.

LARGE SPILL: Deposit in an approved waste disposal facility in accordance with local, state, and federal regulations. If water used in collection DO NOT allow it to get into ditches, as the material has herbicidal properties. Small quantities of water containing dissolved borax, may be washed to an industrial sewer, subject to approval of local, state, and federal authorities.

SECTION VIII  D.O.T. Shipping Information

Proper Shipping Name: NONE
Hazard Class: NONE
ID Number: NONE
Label Requirements: NONE
Reportable Quantity: NONE
Other Information:

SECTION IX  Additional Information

This information may be of importance to you:

PRECAUTIONS FOR SAFE HANDLING AND USE:
Avoid contact with eyes, skin and clothing.
Avoid breathing dust.
Use with adequate ventilation.
Keep container closed.
Store in a cool, dry place.

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SECTION IX Additional Information  

CONTINUED  

Good housekeeping practices are important; this product contains trace impurities, such as arsenic, which if allowed to accumulate in equipment, may present a hazard.  

Wash thoroughly after handling.  

TOXICITY INFORMATION:  

The toxicity of pentahydrate borax has not been established. When dissolved in a buffered water solution, sodium borates cannot be differentiated from one another chemically or toxicologically. The following information is for borax, sodium tetraborate decahydrate. Oral-infant LD(Lo) 1000 mg/kg; Oral-man LD(Lo) 709 mg/kg; Oral-Sprague-Dawley rats LD(50) 4500 mg/kg males; 4980 mg/kg females; Oral-Long-Evans rats LD(50) 6080 mg/kg males. Reproductive effects, including sterility, noted in experimental rats and dogs at feed levels of 7 g/kg; no effects at feed levels of 20 g/kg. Mutagenic effects noted in flies when subjected to an oral concentration of 714 ppm.  

HAZARD RATING  

NPCAHMIS  
Health 1  
Flammability 0  
Reactivity 0  
Special Protection X  

********** END OF REPORT **********  

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NAME: GENE TURNER  
DATE ISSUED: 03/27/1989  
DATE REVISED: 09/25/1989  

< = LESS THAN  
N/A = NOT APPLICABLE  
> = MORE THAN  
N/D = NOT DETERMINED  
UNK = UNKNOWN  
N/E = NOT ESTABLISHED  

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