Madison Chemical Co., Inc.
3141 Clifty Drive  •  Madison, IN 47250

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

NAME: DART 297
TYPE: Retort treatment
PRODUCT #: 629701

FOR INDUSTRIAL USE ONLY – KEEP OUT OF THE REACH OF CHILDREN

EMERGENCY RESPONSE INFORMATION:
CHEMTREC  800-424-9300  24-Hour Service
Company Offices:  812-273-6000  Weekdays
PREPARED DATE:  04-01-15  PREPARED BY:  David Craft

SECTION 2: HAZARDS IDENTIFICATION

GHS Classification
- Oxidizing liquid  Category 3  H272
- Acute toxicity – oral  Category 4  H302
- Skin Corrosion/Irritation  Category 1C  H314
- Serious Eye Damage/Eye Irritation  Category 1  H318
- Specific Target Organ Toxicity  Category 2  H373
- Aquatic Toxicity (Acute)  Category 1  H400
- Aquatic Toxicity (Chronic)  Category 1  H410

Signal Word
WARNING

Symbol

Hazard Statements
- H272  May intensify fire: oxidizer.
- H302  Harmful if swallowed.
- H314  Causes severe skin burns and eye damage.
- H318  Causes serious eye damage.
- H373  May cause damage to organs (liver, kidney, central nervous system, cardiac) with long term or repeated exposure.
- H400  Very toxic to aquatic life.
- H410  Very toxic to aquatic life with long lasting effects.

Precautionary Statements
- P210  Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
- P220  Keep/Store away from clothing/combustible materials.
- P264  Wash hands, forearms, and exposed areas thoroughly after handling.
- P270  Do not eat, drink, or smoke when using this product.
- P273  Avoid release to the environment.
- P280  Wear eye protection, face protection, protective clothing, protective gloves.
- P301 + P330  IF SWALLOWED: rinse mouth.
- P302 + P362 + P364  IF ON SKIN: Take off contaminated clothing and wash it before reuse.
- P304 + P340  IF INHALED: Call a POISON CENTER or doctor if you feel unwell.
Precautionary Statements

Continued

P305 + P351 + P338  IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P314  Get medical attention if you feel unwell.
P321  Specific treatment (see Section 4).
P362  Take off contaminated clothing and wash before reuse.
P370 + P378  In case of fire: Use water fog, dry chemical, carbon dioxide to extinguish.
P391  Collect spillage
P501  Dispose of contents / container according to local, regional, national and international regulations.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>SYNONYM</th>
<th>CAS NO.</th>
<th>% BY WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium nitrite</td>
<td>None</td>
<td>7632-00-0</td>
<td>10 - 20</td>
</tr>
<tr>
<td>Potassium hydroxide</td>
<td>Caustic potash</td>
<td>1310-58-9</td>
<td>1 - 10</td>
</tr>
</tbody>
</table>

SECTION 4: FIRST AID MEASURES

DESCRIPTION OF FIRST AID MEASURES:

EYES: Immediately flush with large quantities of cool water continuously for at least 15 minutes. Call a physician.

SKIN: Immediately flush with large quantities of cool water continuously for at least 15 minutes. Call a physician. Remove contaminated clothing and shoes. Do not put contaminated clothing and shoes back on. Wash clothing and shoes thoroughly in soap and water; rinse repeatedly in clean water and dry before reuse.

INGESTION: Induce vomiting. Give water. Call a physician. DO NOT give anything by mouth if the person is unconscious or if having convulsions.

INHALATION: No specific treatment is necessary since the material is not likely to be hazardous by inhalation. If exposed to excessive levels of fume or dust, remove to fresh air and get medical attention if cough or other symptoms develop.

PRIMARY ROUTE(S) OF ENTRY: Eyes, ingestion.

MOST IMPORTANT SYMPTOMS / EFFECTS, ACUTE AND DELAYED:

EYE CONTACT: Causes burns
SKIN CONTACT: Causes burns
INGESTION: Harmful if swallowed.
INHALATION: May cause nasal and respiratory irritation.
CHRONIC SYMPTOMS: Ingestion of large amounts of sodium nitrite may cause nausea, vomiting, cyanosis (as a result of methemoglobin production), convulsions and coma. Chronic exposure to nitrites may cause headaches, visual problems and decreased blood pressure. Pregnant women may be especially sensitive to nitrite-generated methemoglobinemia. Nitrites may react with secondary and tertiary amines to form nitrosamines, which are animal carcinogens.

INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED, IF NECESSARY:
If you experience any of the symptoms / effects listed above seek medical advice.

SECTION 5: FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA:
Use extinguishing media as appropriate for surrounding fire.

SPECIFIC HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE:
Sodium nitrite explodes when heated to 1,000°F., or upon contact with cyanides. Sodium nitrite is an oxidizer and will support combustion.

ADVICE FOR FIRE FIGHTERS:
Use flooding amounts of water in early stages of fire or when fire is small. When large quantities of sodium nitrite are involved in fires, it may fuse or melt, in which condition, application of water may cause extensive scattering of molten material. Fire fighters must be equipped with self-contained breathing apparatus and turnout gear. Use water spray to keep containers cool.

Hazardous Combustion Products: Nitrogen oxides, sodium oxide, oxygen.
SECTION 6: ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT, AND EMERGENCY PROCEDURES:
Avoid all contact with skin, eyes and clothing. Wear safety eyewear to protect against unexpected splashes. Wear suitable protective clothing. Use NIOSH / MSHA approved positive pressure self-contained breathing apparatus when any material is involved in a fire.

METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP:
Contain liquid spills with sand and absorb on inert material. Dispose with solid waste. See Waste Disposal Method. Do not discharge to sewers or waterways without proper treatment.

SECTION 7: HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING:
Wear proper safety equipment when handling this product. Handle in accordance with good industrial hygiene and safety procedures.

CONDITIONS FOR SAFE STORAGE, INCLUDING INCOMPATIBILITIES:
Normal for materials with oxidizing properties. Store away from acids, oxidizers, reducers, flammables and easily oxidized materials. Do not store in aluminum, copper or zinc containers. Avoid ingestion and physical contact with DART 299 and its solutions.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE GUIDELINES:

<table>
<thead>
<tr>
<th>CHEMICAL IDENTITY</th>
<th>CAS NO.</th>
<th>OSHA PEL</th>
<th>ACGIH TLV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium nitrite</td>
<td>7632-00-0</td>
<td>N.E.*</td>
<td>N.E.*</td>
</tr>
<tr>
<td>Potassium hydroxide</td>
<td>1310-58-9</td>
<td>2 mg/M₃**</td>
<td>2 mg/M₃**</td>
</tr>
</tbody>
</table>

* Manufacturer recommends 2 mg / M₃.

** Denotes ceiling limit

ENGINEERING CONTROLS:
As necessary to avoid inhalation and contact.

INDIVIDUAL PROTECTION MEASURES:
Selection of personal protective equipment should be based upon the anticipated exposure and made in accordance with OSHA’s Personal Protective Equipment Standard found in 29 CFR 1910 Subpart I. The following information may be used to assist in PPE selection.

RESPIRATORY PROTECTION:
Not needed for normal use.

SKIN PROTECTION:
Impermeable gloves. Other equipment as required to avoid contact.

EYE PROTECTION:
Safety eyewear to protect against unexpected splashes.

GENERAL HYGIENE CONSIDERATIONS:
Eyewash facility and emergency shower should be in close proximity. Always wash hands after handling any chemical.
### SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>APPEARANCE:</strong></td>
<td>Dark blue to purple liquid</td>
</tr>
<tr>
<td><strong>ODOR:</strong></td>
<td>Mild</td>
</tr>
<tr>
<td><strong>ODOR THRESHOLD:</strong></td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>pH (100%):</strong></td>
<td>12.0 – 13.0</td>
</tr>
<tr>
<td><strong>MELTING POINT/FREEZING POINT:</strong></td>
<td>32°F.</td>
</tr>
<tr>
<td><strong>INITIAL BOILING POINT AND BOILING RANGE:</strong></td>
<td>216°F (102°C)</td>
</tr>
<tr>
<td><strong>FLASH POINT (METHOD USED):</strong></td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>EVAPORATION RATE:</strong></td>
<td>1.0 (water = 1).</td>
</tr>
<tr>
<td><strong>FLAMMABILITY (SOLID, GAS):</strong></td>
<td>Not available.</td>
</tr>
<tr>
<td>**UPPER/LOWER FLAMMABLE OR EXPLOSIVE LIMIT:</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>VAPOR PRESSURE:</strong></td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>VAPOR DENSITY:</strong></td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>SPECIFIC GRAVITY:</strong></td>
<td>1.2</td>
</tr>
<tr>
<td><strong>SOLUBILITY IN WATER:</strong></td>
<td>Complete.</td>
</tr>
<tr>
<td><strong>PARTITION COEFFICIENT: N-OCTANOL/WATER:</strong></td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>AUTO-IGNITION TEMPERATURE:</strong></td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>VISCOITY, DYNAMIC:</strong></td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>DECOMPOSITION TEMPERATURE:</strong></td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>VISCOITY:</strong></td>
<td>Not available.</td>
</tr>
</tbody>
</table>

### SECTION 10: STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>REACTIVITY:</strong></td>
<td>Hazardous reactions will not occur under normal conditions.</td>
</tr>
<tr>
<td><strong>CHEMICAL STABILITY:</strong></td>
<td>Stable under recommended handling and storage conditions (see Section 7).</td>
</tr>
<tr>
<td><strong>POSSIBILITY OF HAZARDOUS REACTIONS:</strong></td>
<td>Hazardous polymerization will not occur.</td>
</tr>
<tr>
<td><strong>CONDITIONS TO AVOID:</strong></td>
<td>High temperature, sodium nitrite decomposes at 608°F.</td>
</tr>
<tr>
<td><strong>INCOMPATIBLE MATERIALS:</strong></td>
<td>Strong oxidizers, reducing materials, acids, organic matter, cyanides, ammonium salts, cellulose, urea, wood, sodium amide, sodium disulfite, sodium thiocyanate, aminoguanidine salts, butadiene, phthalic acid, phthalic anhydride, lithium.</td>
</tr>
<tr>
<td><strong>HAZARDOUS DECOMPOSITION PRODUCTS:</strong></td>
<td>Nitrogen oxides, sodium oxide, oxygen.</td>
</tr>
</tbody>
</table>
SECTION 11: TOXICOLOGICAL INFORMATION

ACUTE TOXICITY: Not classified.
LD50 AND LC50 DATA: Not available.

ROUTES OF EXPOSURE / SYMPTOMS:
EYES: WARNING! Contacted areas may exhibit irritation.
SKIN: WARNING! Contacted areas may exhibit irritation.
INGESTION: WARNING! Harmful if swallowed.
INHALATION: May cause nasal and respiratory irritation.

GERM CELL MUTAGENICITY: Not classified.
TERATOGENICITY: Not available.

CHRONIC EFFECTS / CARCINOGENICITY:
Ingestion of large amounts of sodium nitrite may cause nausea, vomiting, cyanosis (as a result of methemoglobin production), convulsions and coma. Chronic exposure to nitrates may cause headaches, visual problems and decreased blood pressure. Pregnant women may be especially sensitive to nitrite-generated methemoglobinemia. Nitrites may react with secondary and tertiary amines to form nitrite-generated nitrosamines, which are animal carcinogens.

SPECIFIC TARGET ORGAN TOXICITY (Repeated exposure):
May cause damage to organs (liver, kidney, central nervous system, cardiac) with long term or repeated exposure.

REPRODUCTIVE TOXICITY: Not classified.

SPECIFIC TARGET ORGAN TOXICITY (Single exposure):
Not classified.

ASPIRATION HAZARD:
Not classified.

COMPONENT INFORMATION:
Sodium nitrite
LD50 Oral Rat: 180 mg/kg
LD50 Dermal rabbit: No data
LC50 Inhalation Rat: 5.5 mg/M³/4 hr
LD50 Oral Rat: 284 mg/kg
Potassium hydroxide
LD50 Dermal: No data
LC50 Inhalation: No Data

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICITY
The ecotoxicity of this product is not known

COMPONENT INFORMATION

Sodium nitrite
LC50 Fish Oncorhynchus mykiss: 0.65 – 1 mg/l 96 hours
LC50 Water flea (Daphnia magna): 12.5 - 100 mg/l/96 hours

Potassium hydroxide
Freshwater Fish Data:
LC50 Mosquito fish: 80 mg/L/96hr
LC50 Fathead monnow: 179 mg/L/96 hr
Invertebrate Toxicity Data:
EC50 daphnia magna: 60 ppm

PERSISTENCE AND DEGRADABILITY: Not available.
BIOACCUMULATIVE POTENTIAL: Not available.
MOBILITY IN SOIL: Not available.
OTHER ADVERSE EFFECTS: This material contains no hazardous air pollutants (HAPS).
SAFETY DATA SHEET

SECTION 13: DISPOSAL CONSIDERATIONS
WASTE DISPOSAL METHOD
Normal for wastes containing nitrites. Dispose in accordance with local, state and federal regulations.

SECTION 14: TRANSPORTATION INFORMATION
DOT PROPER SHIPPING NAME: Oxidizing liquid, corrosive, n.o.s., (contains sodium nitrite and potassium hydroxide)
HAZARD CLASS: 5.1, 8
IDENTIFICATION NUMBER: UN3098
PACKING GROUP: III
EMERGENCY RESPONSE GUIDE: ERG # 140

SECTION 15: REGULATORY INFORMATION
VOC: 0 pounds per gallon (0 grams per liter).
TSCA STATUS All ingredients are listed on the TSCA inventory.
CERCLA REPORTABLE QUANTITY 100 pounds for sodium nitrite (approximately 59 gallons),
1,000 pounds for potassium hydroxide (approximately 2,220 gallons)

SARA 311 / 312 HAZARD CLASSES
x ACUTE HEALTH
FIRE
SUDDEN RELEASE OF PRESSURE
x CHRONIC HEALTH
REACTIVE

SARA 312 INFORMATION Storage of 10,000 pounds or more may require filing a Tier 2 form. Threshold planning quantity for reporting is 10,000 pounds. This material is not an extremely hazardous substance (EHS).

SARA 313 INFORMATION This material contains the following substances subject to the reporting requirements of Section 313 of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372

CHEMICAL NAME CATEGORY CODE CAS NUMBER % BY WEIGHT
Sodium nitrite N.A. 7632-00-0 17

STATE REGULATORY INFORMATION
CALIFORNIA PROPOSITION 65 California has not identified the ingredients listed in Section 3 as known to cause cancer or reproductive toxicity.

SECTION 16: OTHER INFORMATION
SDS STATUS: Revised to GHS Standards on 04-01-15.

FOR INDUSTRIAL USE ONLY – KEEP OUT OF THE REACH OF CHILDREN