Occupational Safety & Training
- Occupational Safety
- Main Campus/Research Foundation
- Regulatory Training Programs
- Food Safety

Industrial Hygiene
- Indoor Air Quality (IAQ)
- Asbestos Management

Radiation Safety
- All radiation safety issues
- Inspections and radiation training

Main Campus/UH Fire Safety
- Fire Marshals
- Hazmat Team
- Respond all campus emergencies

Administrative Staff
- All administrative tasks
- Guidance

Environmental Protection
- Hazardous Waste Management
- Pest Management

Laboratory Safety
- Biological
- Chemical

Healthcare Safety
- University Hospital
EH&S Mission Statement

- The Department of Environmental Health & Safety promotes safety and environmental stewardship through the development and implementation of a variety of environmental, health and safety programs.
- Your awareness and involvement will help to ensure compliance and the well-being of our campus community.
Environmental Health & Safety

- Website:  www.stonybrook.edu/ehs
- Main Campus:
  - Main Office (631) 632-6410
- East Campus (University Hospital):
  - Main Office (631) 444-6783
Right to Know Regulations

Mandated by:
- NYS Dept. Of Labor (PESH) under Article 28

Intent:
- Employees have both a need and a right to know the hazards and identities of the chemicals to which they are exposed and the necessary protective measures to prevent injury or illness.

NYS Employees can file complaints:
- NYS Attorney General’s Office
- Website: www.oag.state.ny.us
- 300 Motor Parkway
  Hauppauge, NY 11788-5127
  (631) 231-2400

YOU HAVE A RIGHT TO KNOW!
Your employer must inform you of the health effects and hazards of toxic substances at your worksite.

Learn all you can about toxic substances on your job.
For more information, contact:

Name

Location & Phone Number

THE RIGHT TO KNOW LAW WORKS FOR YOU.
NEW YORK STATE DEPARTMENT OF HEALTH

5
Right to Know Responsibilities

**MANUFACTURERS** Proper labels on products and provide MSDS information

**EMPLOYEE RIGHTS**
- To submit a written requests for information
- Refuse to work with toxic substance if no reply is given within 72 hours
- Obtain access to written HazCom Right-to-Know program
- Cannot be forced to waive any rights as a condition of employment

**EMPLOYER RESPONSIBILITIES**
- **Must inform you** of the health effects and hazards of toxic substances at your work area
- Notify you of your right to request information
- Provide written information within 72 hours
- Provide education and training
- Maintain MSDS information
- Maintain exposure records
- Maintain labeling system
Labeling Chemicals

- Product name
- Signal word:

![DANGER](image)

... indicates an imminently hazardous situation which, if not avoided, will result in serious injury or death. This signal word is to be limited to the most extreme situations.

![WARNING](image)

... indicates a potentially hazardous situation which, if not avoided, could result in a lesser degree of serious injury or death than those identified by the signal word DANGER.

![CAUTION](image)

... indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It may also be used to alert against unsafe practices.

- Precautionary measures
- Instructions in case if contact or exposure
- Fire instructions
- First aid instructions

---

**Acetone**

(Dimethyl Ketone, CAS 67-64-1)

**DANGER**

EXTREMELY FLAMMABLE

Acute: CAUSES IRRITATION OF EYES, SKIN AND MUCOUS MEMBRANES.  EXPOSURE TO LIQUID MAY CAUSE DERMATITIS. Keep away from heat, sparks and flame. Avoid contact with eyes, skin, and clothing. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling.

FIRST AID:

IMMEDIATELY CALL POISON CONTROL CENTER OR HOSPITAL EMERGENCY ROOM.

IF CONTACTED: Immediately flush eyes with plenty of water for at least 15 minutes. Wash skin with soap and plenty of water. GET MEDICAL ATTENTION for eyes. Wash clothing before reuse.

IF INHALED: Remove to fresh air. If not breathing, give artificial resuscitation.

IF SWALLOWED: Give water or dilute: CONSULT POISON CONTROL CENTER OR HOSPITAL EMERGENCY ROOM. Never give anything by mouth to an unconscious person.

---

**SuperClean Anything Cleaner**

MANUFACTURER: 841445

MSDS: 1 oz. / 32 oz.

Super Chemical Corporation

123 Chemical Drive

New York, NY 10454

Emergency Phone: 800-555-5555

Target: Lungs, Stomach

Contents:

Sodium Chloride, Benzoine, Petroleum

Directions:

IF SWALLOWED: Induce vomiting, contact physician.

IF SKIN CONTACT: Wash thoroughly with cold water and soap, contact physician if irritation occurs.

ABC Cleaning Corporation
Unlabeled is Unacceptable!
Labeling Systems – NFPA 704

HAZARDOUS MATERIALS CLASSIFICATION

HEALTH HAZARD
4-Deadly
3-Extreme danger
2-Hazardous
1-Slightly hazardous
0-Normal material

FIRE HAZARD
Flash Points
4-Below 73 F
3-Below 100 F
2-Below 200 F
1-Above 200 F
0-Will not burn

REACTIVITY
4-May detonate
3-Shock and heat may detonate
2-Violent chemical change
1-Unstable if heated
0-Stable

SPECIFIC HAZARD
Oxidizer
Acid
Alkali
Corrosive
Use NO WATER
Radiation Hazard

COR

3
1
0

4
Labeling Systems - HMIS

Hazardous Materials Information System

**Health**

**Flammability**

**Reactivity**

**Personal Protection**
U.S. DOT Vehicle Placards

1073
2

1993
3

3139
5.1

1325
4

1789
8
DOT Hazard Classification Groups

Explosives
Gases
Flammable Liquids
Flammable Solids
Oxidizers and Organic Peroxides
Poison and Infectious Substances
Radioactive
Corrosive
Miscellaneous
§173.6 - Materials of Trade (MOT)

- Hazardous materials carried in a motor vehicle for:
  - Protect health and safety of passengers and operator (fire extinguishers, etc.)
  - Support the operation and maintenance of the motor vehicle (engine starting fluid, oil, spare battery, etc.)
  - To directly support a principal business that is NOT transportation.

- Must be aware that you are transporting MOTs
- Once you purchase a ticket...you are considered “IN COMMERCE” and must follow standard USDOT rules.

**http://hazmat.dot.gov** or call…
Hazard Materials INFO-LINE: (800) 467-4922
Introducing…

The Globally Harmonized System of Classification and Labeling of Chemicals
## Global Harmonized System (GHS) Pictograms and Hazard Classifications

<table>
<thead>
<tr>
<th>GHS Pictograms and Hazard Classes</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="Oxidizers.png" alt="Pictogram" /></td>
</tr>
<tr>
<td><strong>Oxidizers</strong></td>
</tr>
<tr>
<td><img src="AcuteToxicity.png" alt="Pictogram" /></td>
</tr>
<tr>
<td><strong>Acute toxicity (severe)</strong></td>
</tr>
<tr>
<td><img src="Carcinogen.png" alt="Pictogram" /></td>
</tr>
<tr>
<td><strong>Carcinogen</strong></td>
</tr>
<tr>
<td><img src="RespiratorySensitizer.png" alt="Pictogram" /></td>
</tr>
<tr>
<td><strong>Respiratory sensitizer</strong></td>
</tr>
<tr>
<td><img src="ReproductiveToxicity.png" alt="Pictogram" /></td>
</tr>
<tr>
<td><strong>Reproductive toxicity</strong></td>
</tr>
<tr>
<td><img src="TargetOrganToxicity.png" alt="Pictogram" /></td>
</tr>
</tbody>
</table>
New GHS Labeling Requirements

EPICHLOROHYDRIN

UN No. 2023
CAS No. 106-89-8

DANGEROUS
Flammable liquid and vapor. Toxic if swallowed.
Toxic in contact with skin. Causes severe skin burns and eye damage. May cause an allergic skin reaction. May cause cancer.

Do not breathe dust/fume/gas/mist/vapors/spray.
Wear protective gloves/protective clothing/eye protection.

Fill Weight: 18.52 lbs.
Gross Weight: 20 lbs
Expiration Date: 1/15/2018
Lot Number: A032311323
Fill Date: 1/15/2012

JACKSON CHEMICAL COMPANY - City of Industry, Los Angeles, California, USA (800)-444-456-8989

1 Product Identifier
2 Signal word, “Danger”
3 Pictograms
4 Hazard Statements
5 Precautionary Statements
6 Supplier Information
New GHS Compressed Gas Cylinder Labeling

Previous label:

New GHS label:
# GHS Comparison Chart

<table>
<thead>
<tr>
<th>OLD</th>
<th>Description</th>
<th>GHS-Symbols</th>
<th>Description</th>
<th>Hazard statement examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>Explosive</td>
<td>Explosive</td>
<td>GHS01: Exploding bomb</td>
<td>Explodes due to fire, shock, friction or heat; danger due to fire, blast and projectiles.</td>
</tr>
<tr>
<td>F+</td>
<td>Extremely flammable</td>
<td>Flammable</td>
<td>GHS02: Flammable</td>
<td>Flammable; catches fire spontaneously if exposed to air; in contact with water releases flammable gases which may ignite spontaneously.</td>
</tr>
<tr>
<td>F</td>
<td>Highly flammable</td>
<td>Flammable</td>
<td>GHS03: Flame over circle</td>
<td>May cause fire or explosion; strong oxidizer.</td>
</tr>
<tr>
<td>O</td>
<td>Oxidizing</td>
<td>Oxidizing</td>
<td>GHS04: Gas cylinder</td>
<td>Contains gas under pressure; may explode if heated; contains refrigerated gas; may cause cryogenic burns or injury.</td>
</tr>
<tr>
<td></td>
<td>No equivalent</td>
<td>No equivalent</td>
<td>GHS05: Corrosion</td>
<td>May be corrosive to metals; causes severe skin burns and eye damage.</td>
</tr>
<tr>
<td>C</td>
<td>Corrosive</td>
<td>Corrosive</td>
<td>GHS06: Skull and crossbones</td>
<td>Small quantities are harmful or fatal.</td>
</tr>
<tr>
<td>T+</td>
<td>Very toxic</td>
<td>Toxic</td>
<td>GHS07: Skull and crossbones</td>
<td>No direct equivalent</td>
</tr>
<tr>
<td>T</td>
<td>Toxic</td>
<td></td>
<td></td>
<td>No direct equivalent</td>
</tr>
<tr>
<td>Xn</td>
<td>Harmful</td>
<td>Exclamation mark</td>
<td>GHS08: Health hazard</td>
<td>Harmful, irritates eyes, skin or respiratory system; large quantities are fatal.</td>
</tr>
<tr>
<td>Xi</td>
<td>Irritant</td>
<td></td>
<td></td>
<td>Cause allergic reactions; may cause cancer, may cause genetic defects; may damage fertility of the unborn child; causes damage to organs.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Environment</td>
<td>GHS09: Environment</td>
<td>Harmful, toxic or very toxic to aquatic life with long lasting effects.</td>
</tr>
</tbody>
</table>
ALARA practices are mandated for authorized radiation workers by the NYS Department of Health - Bureau of Environmental Radiation Protection.

- One can never have "zero" radiation exposure because of the naturally occurring radioactivity that surrounds us - cosmic rays, natural isotopes in our body etc.
- Therefore, the best we can do is to eliminate all unnecessary exposure and follow SBU’s ALARA principles (e.g. time, distance, & shielding).
Universal Warning Labels

BIOHAZARD
**OSHA Signage**

| ![Danger Sign] | Used **only** to indicate major hazard situations where an immediate hazard presents a threat of serious injury or death to employees.  
| ![Warning Sign] | Used **only** to indicate a potentially hazardous situation which, if not avoided, could result in serious injury or death.  
  | Hazards identified by the signal word WARNING present a lesser degree of risk of injury or death than those identified by the signal word DANGER. |
**OSHA Signage**

<table>
<thead>
<tr>
<th>Sign</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="CAUTION" /></td>
<td>Used <em>only</em> to indicate a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. Proper precaution should be taken.</td>
</tr>
<tr>
<td><img src="image" alt="NOTICE" /></td>
<td>Used <em>only</em> to indicate a statement of company policy as the message relates directly or indirectly to the safety of personnel or protection of property.</td>
</tr>
</tbody>
</table>
Safety Instruction Signs

- Used to indicate general instructions relative to safe work practices, reminders of proper safety procedures, and the location of safety equipment.
Under new GHS regulations, the MSDS will now be known as the SDS.

The SDS is considered the most important way in which chemical information is provided to employers and employees.

An SDS should answer questions you have about using a product safely.
Trade Secrets…

- The manufacturer may be able to withhold ingredient information from the SDS if any ingredients are trade secrets.

- Procedures for challenging a manufacturer's trade secret claim are determined by different state laws.

- Under most Right-to-Know laws, the manufacturer must provide the trade secret identities to health care professionals and/or workers if they have a need to know the information, or in a medical emergency.
SDS Binder

- Hard copy of all SDS for just the hazardous chemicals you use
- All must know where the SDS information is located
- All must know how to search SDS
SDS Interpretation

1. Identification
2. Hazard(s) Identification
3. Composition/Information on Ingredients
4. First-Aid Measures
5. Fire-Fighting Measures
6. Accidental Release Measures
7. Handling and Storage
8. Exposure Controls/Personal Protective Equipment
9. Physical and Chemical Properties
10. Stability and Reactivity
11. Toxicological Information
12. Ecological Information *
13. Disposal Considerations *
14. Transport Information *
15. Regulatory Information *
16. Other Information

*Note: Since other Agencies regulate this information, OSHA will not be enforcing sections 12 through 15
SDS  Section 1

GHS SAFETY DATA SHEET

WELD-ON® 702™ Low VOC PVC Plastic Pipe Cement

SECTION I - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: WELD-ON® 702™ Low VOC PVC Plastic Pipe Cement
PRODUCT USE: Low VOC Solvent Cement for PVC Plastic Pipe
MANUFACTURER: IPS Corporation
17108 South Main Street, Carson, CA 90248-3127
P.O. Box 376, Gardena, CA 90247-0376
Tel. 1-310-398-3300

EMERGENCY: Transportation: Tel. 800.424.9300, 703.527.3867 CHEMTREC (International)
Medical: Tel. 800.451.6346, 750.602.8703 3E Company (International)

Material name
24/7 emergency telephone #
chemical formula
other trade names
derivation
use
manufacturer
SDS Section 2

SECTION 2 - HAZARDS IDENTIFICATION

<table>
<thead>
<tr>
<th>GHS CLASSIFICATION:</th>
<th>Health</th>
<th>Environmental</th>
<th>Physical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Toxicity:</td>
<td>Category 4</td>
<td>Acute Toxicity:</td>
<td>None Known</td>
</tr>
<tr>
<td>Skin Irritation:</td>
<td>Category 3</td>
<td>Chronic Toxicity:</td>
<td>None Known</td>
</tr>
<tr>
<td>Skin Sensitization:</td>
<td>NO</td>
<td></td>
<td>Flammable Liquid</td>
</tr>
<tr>
<td>Eye:</td>
<td>Category 2B</td>
<td></td>
<td>Category 2</td>
</tr>
</tbody>
</table>

GHS LABEL:

OR

Signal Word: Danger

WHMIS CLASSIFICATION: CLASS B, DIVISION 2

H225: Highly flammable liquid and vapor
H315: Causes serious eye irritation
H332: Harmful if inhaled
H335: May cause respiratory irritation
H336: May cause drowsiness or dizziness
EUH019: May form explosive peroxides

<table>
<thead>
<tr>
<th>Hazard Statements</th>
<th>Precautionary Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking</td>
</tr>
<tr>
<td></td>
<td>P261: Avoid breathing dust/fume/gas/mist/vapors/spray</td>
</tr>
<tr>
<td></td>
<td>P280: Wear protective gloves/protective clothing/eye protection/face protection</td>
</tr>
<tr>
<td></td>
<td>P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing</td>
</tr>
<tr>
<td></td>
<td>P403+P233: Store in a well ventilated place. Keep container tightly closed</td>
</tr>
<tr>
<td></td>
<td>P501: Dispose of contents/container in accordance with local regulation</td>
</tr>
</tbody>
</table>

Carcinogenicity, summary of risks, medical condition aggravated, target organs, primary entry routes, acute and chronic effects.

MSDS terms you should know...

- **Acute** - Short term exposure, occurs rapidly with immediate health effect. e.g., irritation
- **Chronic** - Prolonged repeated exposure and health effects may be irreversible. e.g., hearing loss
- **Carcinogen** - Causes cancer. e.g., asbestos
Chemical composition, information on ingredients, and exposure limit guidelines. MSDS terms you should know...

- **Time Weighted Average (TWA)** - Average exposure throughout day.
- **Threshold Limit Value (TLV)** - TWA for 8 hr. Shift to which workers may be repeatedly exposed without adverse effect.
- **Permissible Exposure Limit (PEL)** - Average exposure limit throughout day.
- **Short Term Exposure Limit (STEL)** - 15 min. exposure not to be exceeded at anytime during a work day.
- **Toxic** - Poison
- **Target Organ** - Specific site/system attacked.
- **Mutagen** - changes the genetic information (usually DNA) of an organism and thus increases the number of mutations e.g., Ionizing radiation and chemicals such as Methyl methacrylate, Sulfur dioxide
- **Teratogen** - causes change or harm to a fetus or embryo e.g., lead, Polychlorinated biphenyl (PCB), Streptomycin, Zinc sulfate
SDS Section 3

- **Corrosives** - Destroy living tissue.
  
  e.g., sulfuric acid and sodium hydroxide

- **Irritant** - Inflames living tissue. e.g., poison ivy

- **Sensitizer** - Causes allergic reaction in some people. e.g., formaldehyde, latex, and epoxies
SECTION 4 - FIRST AID MEASURES

Contact with eyes:  Flush eyes immediately with plenty of water for 15 minutes and seek medical advice immediately.
Skin contact:  Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water. If irritation develops, seek medical advice.
Inhalation:  Remove to fresh air. If breathing is stopped, give artificial respiration. If breathing is difficult, give oxygen. Seek medical advice.
Ingestion:  Rinse mouth with water. Give 1 or 2 glasses of water or milk to dilute. Do not induce vomiting. Seek medical advice immediately.

First Aid

- Assist victim with first aid
- Always seek prompt medical attention
- Report all accidents and injuries
- Tell your supervisor
- **Bloodborne Pathogen:**
  - Exposure must be reported to supervisor immediately
  - Antiviral treatment within 2 hours for effective medical follow up
- **Bloodborne Pathogen Exposure Control Plan:**
  - HBV vaccine series at no cost to employee
  - Declination Form must be signed if HBV vaccine is refused
  - Can get HBV vaccine at anytime if you change your mind
Splash to the Eyes:

- Immediately flush with copious amounts of water for at least 15 minutes
- Assist person
- Seek medical attention

Emergency Eyewashes:

- Squeeze handle to operate
SDS Section 4

**Splash to the Body:**

- Remove contaminated clothing
- Immediately flush with copious amounts of water for at least **15 minutes.**
- Seek medical attention

**Emergency Showers:**

- Pull Handle to operate
**SDS Section 5**

**SECTION 5 - FIREFIGHTING MEASURES**

<table>
<thead>
<tr>
<th>Suitable Extinguishing Media:</th>
<th>Dry chemical powder, carbon dioxide gas, foam, Halon, water fog.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsuitable Extinguishing Media:</td>
<td>Water spray or stream.</td>
</tr>
<tr>
<td>Exposure Hazards:</td>
<td>Inhalation and dermal contact</td>
</tr>
<tr>
<td>Combustion Products:</td>
<td>Oxides of carbon, hydrogen chloride and smoke</td>
</tr>
<tr>
<td>Protection for Firefighters:</td>
<td>Self-contained breathing apparatus or full-face positive pressure airline masks.</td>
</tr>
<tr>
<td>HMIS</td>
<td>2</td>
</tr>
<tr>
<td>NFPA</td>
<td>2</td>
</tr>
<tr>
<td>Health</td>
<td>1-Slight</td>
</tr>
<tr>
<td>Flammability</td>
<td>3</td>
</tr>
<tr>
<td>Reactivity</td>
<td>3</td>
</tr>
<tr>
<td>2-Moderate</td>
<td>3-Serious</td>
</tr>
<tr>
<td>4-Severe</td>
<td></td>
</tr>
</tbody>
</table>

**Fire Safety**

- Know where the “pull boxes” are
- Know at least 2 ways to get out of the building
- Do not use the elevators
- Close all doors behind you
- **ALWAYS EXIT THE BUILDING WHEN THE ALARM IS RINGING!**
## Fire Classifications

<table>
<thead>
<tr>
<th>Letter</th>
<th>Description</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Common Combustibles</td>
<td>Wood, paper, cloth etc.</td>
</tr>
<tr>
<td>B</td>
<td>Flammable liquids and gases</td>
<td>Gasoline, propane and solvents</td>
</tr>
<tr>
<td>C</td>
<td>Live electrical equipment</td>
<td>Computers, fax machines</td>
</tr>
<tr>
<td>D</td>
<td>Combustible metals</td>
<td>Magnesium, lithium, titanium</td>
</tr>
<tr>
<td>K</td>
<td>Cooking media</td>
<td>Cooking oils and fats</td>
</tr>
</tbody>
</table>
Fire Tetrahedron

In order for fire to occur four things must be present, Oxygen, Fuel, Heat, and a Chemical Chain Reaction. This is represented by the Fire Tetrahedron. When any of the four items are removed, the fire will go out. Fire extinguishers function by removing one of the four components of the Fire Tetrahedron.
If You See Fire or Smoke…

- **R**emove everyone from danger
- **A**larm: pull fire alarm box or call University Police at 911(632-3333 from a cell or non-campus phone)
- **C**onfine: close all doors
- **E**xtinguish or evacuate
Fire Extinguisher Use

- **P** Pull the pin. The pin keeps the extinguisher from being accidentally discharged. Twisting it as you pull it out will help to break the seal.
- **A** Aim for the base of the fire. You also want to be sure to aim at the front of the base of the fire. The pressure of the agent as it is expelled can cause the fire to flare up. If you aim for the front, it will push the fire away from you.
- **S** Squeeze the handle. Be sure to squeeze it hard and all the way down otherwise you will not open the valve all the way.
- **S** Sweep back and forth across the fire pushing it back until it goes out.
SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions:
- Keep away from heat, sparks and open flame.
- Provide sufficient ventilation, use explosion-proof exhaust ventilation equipment or wear suitable respiratory protective equipment.
- Prevent contact with skin or eyes (see section 8).

Environmental Precautions:
- Prevent product or liquids contaminated with product from entering sewers, drains, soil or open water course.

Methods for Cleaning up:
- Clean up with sand or other inert absorbent material. Transfer to a closable steel vessel.

Materials not to be used for clean up:
- Aluminum or plastic containers

- Chemical spills & leaks must be immediately reported to EH&S by contacting University Police at **911** (632-3333 from a cell or non-campus phone).
- Notify others in the area about the spill and post a warning sign.
- If there is a fire involved with the spill or the chemical leak may affect others outside of the immediate area, immediately pull the fire alarm, begin evacuation and notify University Police.
SDS Section 6

- **Reactive** undergoes hazardous changes with temperature, pressure or shock. e.g., Ethyl ether

- **Explosive** explodes with temperature, pressure or shock. e.g., TNT, picric acid
SDS Section 6

- **Oxidizer** - compound that spontaneously reacts with other chemicals or solvents
  e.g., Oxygen (O₂)

- **Pyrophoric** - a solid or gas that ignites spontaneously when exposed to air.
  e.g., phosphorus
SECTION 7 - HANDLING AND STORAGE

Handling: Avoid breathing of vapor, avoid contact with eyes, skin and clothing.
Keep away from ignition sources, use only electrically grounded handling equipment and ensure adequate ventilation/fume exhaust hoods.
Do not eat, drink or smoke while handling.

Storage: Store in ventilated room or shade below 44 °C (110 °F) and away from direct sunlight.
Keep away from ignition sources and incompatible materials: caustics, ammonia, inorganic acids, chlorinated compounds, strong oxidizers and isocyanates.
Follow all precautionary information on container label, product bulletins and solvent cementing literature.

Handling and Storage of Compressed Cylinders
SECTION 8 - PRECAUTIONS TO CONTROL EXPOSURE / PERSONAL PROTECTION

<table>
<thead>
<tr>
<th>EXPOSURE LIMITS: Component</th>
<th>ACGIH TLV</th>
<th>ACGIH STEL</th>
<th>OSHA PEL</th>
<th>OSHA STEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetrahydrofuran (THF)</td>
<td>50 ppm</td>
<td>100 ppm</td>
<td>200 ppm</td>
<td></td>
</tr>
<tr>
<td>Methyl Ethyl Ketone (MEK)</td>
<td>200 ppm</td>
<td>300 ppm</td>
<td>200 ppm</td>
<td></td>
</tr>
<tr>
<td>Cyclohexanone</td>
<td>20 ppm</td>
<td>50 ppm</td>
<td></td>
<td>50 ppm</td>
</tr>
</tbody>
</table>

Engineering Controls: Use local exhaust as needed.
Monitoring: Maintain breathing zone airborne concentrations below exposure limits.

Personal Protective Equipment (PPE):

Eye Protection: Avoid contact with eyes, wear splash-proof chemical goggles, face shield, safety glasses (spectacles) with brow guards and side shields, etc. as may be appropriate for the exposure.

Skin Protection: Prevent contact with the skin as much as possible. Butyl rubber gloves should be used for frequent immersion.
Use of solvent-resistant gloves or solvent-resistant barrier cream should provide adequate protection when normal adhesive application practices and procedures are used for making structural bonds.

Respiratory Protection: Prevent inhalation of the solvents. Use in a well-ventilated room. Open doors and/or windows to ensure airflow and air changes. Use local exhaust ventilation to remove airborne contaminants from employee breathing zone and to keep contaminants below levels listed above. With normal use, the Exposure Limit Value will not usually be reached. When limits approached, use respiratory protection equipment.
## SDS Section 9

### SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Clear, regular syrupy liquid</td>
</tr>
<tr>
<td>Odor</td>
<td>Ketone</td>
</tr>
<tr>
<td>pH</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Melting/Freezing Point:</td>
<td>-108°C (-162°F) Based on first melting component: THF</td>
</tr>
<tr>
<td>Boiling Point:</td>
<td>67°C (151°F) Based on first boiling component: THF</td>
</tr>
<tr>
<td>Flash Point:</td>
<td>-14°C (7°F) TCC based on THF</td>
</tr>
<tr>
<td>Specific Gravity:</td>
<td>0.934 @23°C (73°F)</td>
</tr>
<tr>
<td>Solubility:</td>
<td>Solvent portion soluble in water. Resin portion separates out.</td>
</tr>
<tr>
<td>Odor Threshold:</td>
<td>0.88 ppm (Cyclohexanone)</td>
</tr>
<tr>
<td>Boiling Range:</td>
<td>66°C (151°F) to 156°C (313°F)</td>
</tr>
<tr>
<td>Evaporation Rate:</td>
<td>&gt; 1.0 (BUAC = 1)</td>
</tr>
<tr>
<td>Flammability:</td>
<td>Category 2</td>
</tr>
<tr>
<td>Flammability Limits:</td>
<td>LEL: 1.1% based on Cyclohexanone</td>
</tr>
<tr>
<td></td>
<td>UEL: 11.8% based on THF</td>
</tr>
<tr>
<td>Vapor Pressure:</td>
<td>120 mm Hg @ 20°C (68°F) based on THF</td>
</tr>
<tr>
<td>Vapor Density:</td>
<td>&gt;2 (Air = 1)</td>
</tr>
<tr>
<td>Other Data: Viscosity:</td>
<td>Regular bodied</td>
</tr>
</tbody>
</table>

**Physical state**  
**Color/odor threshold**  
**Boiling/freezing points**  
**Specific gravity**
**SECTIO 10 - STABILITY AND REACTIVITY**

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stability:</strong></td>
<td>Stable</td>
</tr>
<tr>
<td><strong>Hazardous decomposition products:</strong></td>
<td>None in normal use. When forced to burn, this product gives off oxides of carbon, hydrogen chloride and smoke.</td>
</tr>
<tr>
<td><strong>Conditions to avoid:</strong></td>
<td>Keep away from heat, sparks, open flame and other ignition sources.</td>
</tr>
<tr>
<td><strong>Incompatible Materials:</strong></td>
<td>Oxidizers, strong acids and bases, amines, ammonia</td>
</tr>
<tr>
<td><strong>Boiling Point:</strong></td>
<td>67°C (151°F) Based on first boiling component: THF</td>
</tr>
<tr>
<td><strong>Flash Point:</strong></td>
<td>-14°C (7°F) TCC based on THF</td>
</tr>
<tr>
<td><strong>Specific Gravity:</strong></td>
<td>0.934 @23°C (73°F)</td>
</tr>
<tr>
<td><strong>Solubility:</strong></td>
<td>Solvent portion soluble in water. Resin portion separates out.</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>321.1°C (608.8°F) based on THF</td>
</tr>
<tr>
<td><strong>Decomposition Temperature:</strong></td>
<td>Not Applicable</td>
</tr>
<tr>
<td><strong>VOC Content:</strong></td>
<td>When applied as directed, per SCAQMD Rule 1168, Test Method 316A, VOC content is: ≤ 510 g/l.</td>
</tr>
<tr>
<td><strong>Evaporation Rate:</strong></td>
<td>&gt; 1.0 (BUAC = 1)</td>
</tr>
<tr>
<td><strong>Flammability:</strong></td>
<td>Category 2</td>
</tr>
<tr>
<td><strong>Flammability Limits:</strong></td>
<td>LEL: 1.1% based on Cyclohexanone</td>
</tr>
<tr>
<td><strong>UEL:</strong></td>
<td>11.8% based on THF</td>
</tr>
<tr>
<td><strong>Vapor Pressure:</strong></td>
<td>129 mm Hg @ 20°C (68°F) based on THF</td>
</tr>
<tr>
<td><strong>Vapor Density:</strong></td>
<td>&gt;2 (Air = 1)</td>
</tr>
<tr>
<td><strong>Other Data: Viscosity:</strong></td>
<td>Regular bodied</td>
</tr>
</tbody>
</table>

**Chemical stability**

**Incompatibilities**

**Conditions to avoid**

**Hazardous products of decomposition**
## SECTION 11 - TOXICOLOGICAL INFORMATION

**Likely Routes of Exposure:** Inhalation, Eye and Skin Contact

**Acute symptoms and effects:**

**Inhalation:** Severe overexposure may result in nausea, dizziness, headache. Can cause drowsiness, irritation of eyes and nasal passages.

**Eye Contact:** Vapors slightly uncomfortable. Overexposure may result in severe eye injury with corneal or conjunctival inflammation on contact with the liquid.

**Skin Contact:** Liquid contact may remove natural skin oils resulting in skin irritation. Dermatitis may occur with prolonged contact.

**Ingestion:** May cause nausea, vomiting, diarrhea and mental sluggishness.

**Chronic (long-term) effects:** None known to humans

**Toxicity:**

<table>
<thead>
<tr>
<th>Substance</th>
<th>Oral: 2642 mg/kg (rat)</th>
<th>Inhalation 3 hrs. 21,000 mg/m³ (rat)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetrahydrofuran (THF)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Substance</th>
<th>Oral: 2737 mg/kg (rat), Dermal: 6480 mg/kg (rabbit)</th>
<th>Inhalation 8 hrs. 23,500 mg/m³ (rat)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl Ethyl Ketone (MEK)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Substance</th>
<th>Oral: 1535 mg/kg (rat), Dermal: 948 mg/kg (rabbit)</th>
<th>Inhalation 4 hrs. 8,000 PPM (rat)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyclohexanone</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reproductive Effects</th>
<th>Teratogenicity</th>
<th>Mutagenicity</th>
<th>Embryotoxicity</th>
<th>Sensitization to Product</th>
<th>Synergistic Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Established</td>
<td>Not Established</td>
<td>Not Established</td>
<td>Not Established</td>
<td>Not Established</td>
<td>Not Established</td>
</tr>
</tbody>
</table>

### Eye effects

#### Acute oral effects

#### Acute inhalation effects for humans and animals
Ecotoxicity
Environmental degradation
Soil absorption
SDS Section 13

SECTION 13 - WASTE DISPOSAL CONSIDERATIONS
Follow local and national regulations. Consult disposal expert.

Disposal considerations
Disposal methods

Hazardous Waste is…
Flammable, Corrosive, Reactive or Toxic
## SECTION 14 - TRANSPORT INFORMATION

<table>
<thead>
<tr>
<th>Proper Shipping Name:</th>
<th>Adhesives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazard Class:</td>
<td>3</td>
</tr>
<tr>
<td>Secondary Risk:</td>
<td>None</td>
</tr>
<tr>
<td>Identification Number:</td>
<td>UN 1133</td>
</tr>
<tr>
<td>Packing Group:</td>
<td>PG II</td>
</tr>
<tr>
<td>Label Required:</td>
<td>Class 3 Flammable Liquid</td>
</tr>
<tr>
<td>Marine Pollutant:</td>
<td>NO</td>
</tr>
</tbody>
</table>

**EXCEPTION for Ground Shipping**

<table>
<thead>
<tr>
<th>DOT Limited Quantity:</th>
<th>Up to 5L per inner packaging, 30 kg gross weight per package.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer Commodity:</td>
<td>Depending on packaging, these quantities may qualify under DOT as &quot;ORM-D&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TDG INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>TDG CLASS:</td>
</tr>
<tr>
<td>SHIPPING NAME:</td>
</tr>
<tr>
<td>UN NUMBER/PACKING GROUP:</td>
</tr>
</tbody>
</table>

**DOT shipping name**

**DOT hazard class**

**DOT label**

**Quantity limits**

**Vessel stowage req.**
### SECTION 15 - REGULATORY INFORMATION

**Precautionary Label Information:** Highly Flammable, Irritant  
**Symbols:** F, Xi  
**Risk Phrases:**  
R11: Highly flammable.  
R20: Harmful by inhalation.  
R36/37: Irritating to eyes and respiratory system.  
**Safety Phrases:**  
S9: Keep container in a well-ventilated place.  
S16: Keep away from sources of ignition - No smoking.  
S25: Avoid contact with eyes.  
**Ingredient Listings:** USA TSCA, Europe EINECS, Canada DSL, Australia AICS, Korea ECL/TCCL, Japan MiTI (ENCS)  
**S26:** In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
**S33:** Take precautionary measures against static discharges.  
**S46:** If swallowed, seek medical advice immediately and show this container or label.

**EPA designations**  
**OSHA designations**
### SECTION 16 - OTHER INFORMATION

<table>
<thead>
<tr>
<th>Specification Information:</th>
<th>IPS, Safety Health &amp; Environmental Affairs</th>
<th>All ingredients are compliant with the requirements of the European Directive on RoHS (Restriction of Hazardous Substances).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department issuing data sheet:</td>
<td><a href="mailto:EHSinfo@ipscorp.com">EHSinfo@ipscorp.com</a></td>
<td></td>
</tr>
<tr>
<td>E-mail address:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training necessary:</td>
<td>Yes, training in practices and procedures contained in product literature.</td>
<td></td>
</tr>
<tr>
<td>Reissue date / reason for reissue:</td>
<td>2/23/10 / Updated GHS Standard Format</td>
<td></td>
</tr>
<tr>
<td>Intended Use of Product:</td>
<td>Solvent Cement for PVC Plastic Pipe</td>
<td></td>
</tr>
</tbody>
</table>

This product is intended for use by skilled individuals at their own risk. The information contained herein is based on data considered accurate based on current state of knowledge and experience. However, no warranty is expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof.

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**Other information**

**SDS references**

**Industrial hygiene review**

**Medical review**
Always remember to...

- **Read the SDS before you handle or use any hazardous substance!**