

MATERIAL SAFETY DATA SHEET



Date Issued: 11/05/2009
 MSDS No: 1636
 Date Revised: 11/05/2009
 Revision No: 20

MIRACLE DSA20 Construction and FRP Adhesive (item #293 & 294)

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: MIRACLE DSA20 Construction and FRP Adhesive (item #293 & 294)

MANUFACTURER

ITW TACC
 56 Air Station Industrial Park
 Rockland MA 02370

Product Stewardship: (781) 878-7015

Service Number: (800) 503-6991

24 HR. EMERGENCY TELEPHONE NUMBERS

CHEMTREC (US Transportation): (800) 424-9300

COMMENTS: MIRACLE is a registered trademark of Illinois Tool Works, Inc.

2. HAZARDS IDENTIFICATION

HAZARD DESIGNATION

"F" - Highly flammable

"N" - Dangerous for the environment

"Xn" - Harmful

EMERGENCY OVERVIEW

PHYSICAL APPEARANCE: Tan. Viscous. Liquid.

IMMEDIATE CONCERNS: DANGER! Extremely flammable liquid and vapor. Vapor may cause flash fire and explosion. Harmful or fatal if swallowed. Harmful if absorbed through the skin. Pulmonary aspiration hazard. After ingestion, may enter lungs and produce damage. High vapor concentrations may cause drowsiness. Can cause eye, skin and respiratory tract irritation.

POTENTIAL HEALTH EFFECTS

EYES: Can cause severe eye irritation and corneal damage.

SKIN: Causes defatting and skin irritation. Can cause dermatitis.

SKIN ABSORPTION: May be absorbed through the skin in harmful amounts.

INGESTION: Can cause gastrointestinal irritation, nausea and vomiting. Aspiration of material into the lungs may cause chemical pneumonitis, which can be fatal. Harmful or fatal if swallowed.

INHALATION: May cause nose or throat irritation. High concentrations may lead to central nervous system effects (drowsiness, dizziness, nausea, headaches, paralysis and loss of consciousness).

SIGNS AND SYMPTOMS OF OVEREXPOSURE

EYES: Liquid and vapor can severely irritate the eyes depending on type of exposure (splash, vapor) and exposure time.

SKIN: Mild to moderate skin irritant.

SKIN ABSORPTION: May be absorbed through the skin and can contribute to overall exposure. Effects are similar to CNS depression.

INGESTION: May result in central nervous system (CNS) depression with symptoms such as headaches, nausea, vomiting, diarrhea, dizziness, incoordination and unconsciousness. Aspiration of

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material into lungs may cause chemical pneumonitis which can be fatal.

INHALATION: High vapor concentrations may cause CNS depression with symptoms including light headedness, giddiness, nausea, drowsiness, headache, nose, throat and respiratory tract irritation, reduced appetite, confusion, and unconsciousness.

ACUTE TOXICITY: High vapor concentrations may cause central nervous system (CNS) depression with symptoms including light headedness, giddiness, nausea, drowsiness, headache, nose, throat and respiratory tract irritation, reduced appetite, confusion and unconsciousness.

CHRONIC EFFECTS: Damage to the nervous system of the extremities, peripheral neuropathy, with symptoms including numbness, tingling and weakness in the toes and fingers, sensory impairment to touch, pain, vibration and temperature, muscular weakness, blurred vision, coldness of extremities, loss of body weight and reflexes, and even paralysis. Frequent or prolonged contact may irritate the skin and cause a skin rash (dermatitis).

MUTAGENICITY: None known.

REPRODUCTIVE TOXICITY

REPRODUCTIVE EFFECTS: None known.

TERATOGENIC EFFECTS: None known.

ROUTES OF ENTRY: Eye Contact, Ingestion, Inhalation, Skin Absorption, and Skin Contact

TARGET ORGAN STATEMENT: Central Nervous System (CNS)

IRRITANCY: Eyes, nose, throat, respiratory tract, and skin irritation.

HEALTH HAZARDS: This product contains silica, quartz, a chemical known to the State of California to cause cancer.

3. COMPOSITION / INFORMATION ON INGREDIENTS

| Chemical Name | Wt.% | CAS | EINECS | Classification |
|---|--------|-------------|-----------|------------------------------------|
| n-Hexane | 7 - 13 | 000110-54-3 | 203-777-6 | F,Xn,N; 11-38-48/20-62-65-67-51/53 |
| Low Boiling Point Naphtha - Solvent Naphtha (petroleum), Light Aliph. | 3 - 10 | 064742-89-8 | 265-192-2 | Xn; 65 |
| n-Heptane | 3 - 10 | 000142-82-5 | 265-192-2 | F,Xi,N; 11-38-50/53-65-67 |
| Cyclohexane | 1 - 5 | 000110-82-7 | 203-806-2 | F; 11 |
| Silica, Crystalline | < 0.5 | 014808-60-7 | 238-878-4 | Xn; 48/20-40/20 |

4. FIRST AID MEASURES

EYES: Immediately flush eyes with plenty of tempered water (at least 15-20 minutes) lifting upper and lower eye lids occasionally. Get immediate medical attention.

SKIN: Immediately wash skin with soap and plenty of water. Remove contaminated clothing. Get medical attention if symptoms occur. Wash or dispose of clothing before reuse.

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INGESTION: Do not induce vomiting, keep person warm, quiet and get medical attention immediately. If vomiting occurs naturally, have victim lean forward to reduce the risk of aspiration. Aspiration of this material into the lungs due to vomiting can cause chemical pneumonitis which can be fatal.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.

5. FIRE FIGHTING MEASURES

FLASHPOINT AND METHOD: -23°C (-9.4°F)

FLAMMABLE LIMITS: 1.1 to 8.7

AUTOIGNITION TEMPERATURE: (437°F) to (682°F)

FLAMMABLE CLASS: Class IB

GENERAL HAZARD: Flammable liquid and vapor.

EXTINGUISHING MEDIA: Foam, dry chemical, carbon dioxide, water spray or fog.

HAZARDOUS COMBUSTION PRODUCTS: Carbon Monoxide, Carbon Dioxide, Aldehydes

EXPLOSION HAZARDS: Avoid fire, sparks, static electricity and hot surfaces. Liquid readily evaporates at room/ambient temperature. Vapors are invisible, flammable, heavier than air, and may accumulate in low areas and spread long distances. Distant ignition and flashback are possible.

FIRE FIGHTING PROCEDURES: As in any fire, wear self-contained breathing apparatus with pressure-demand, full face piece SCBA (MSHA/NIOSH approved or equivalent) and full protective gear.

SENSITIVE TO STATIC DISCHARGE: Likely to catch fire from near-by spark. Static charge may accumulate by flow or agitation. Grounding and bonding of containers is required.

SENSITIVITY TO IMPACT: None known.

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon Monoxide and Carbon Dioxide may form when heated to decomposition.

6. ACCIDENTAL RELEASE MEASURES

SMALL SPILL: Dike area to contain spill. Take precautions as necessary to prevent contamination of ground and surface waters. Recover spilled material on absorbent, such as sawdust or vermiculite, and sweep into closed containers for disposal. After all visible traces, including ignitable vapors, have been removed thoroughly wet vacuum the area. Do not flush to sewer. If area of spill is porous, remove as much contaminated earth and gravel, etc. as necessary and place in closed containers for disposal. Only those persons who are adequately trained, authorized, and wearing the required personal protective equipment (PPE) should participate in spill response and clean-up.

LARGE SPILL: Keep spectators away. Only those persons who are adequately trained, authorized and wearing the required personal protective equipment (PPE) should participate in spill response and clean-up. Ventilate the area by natural means or by explosion proof mechanical means (i.e. fans). Know and prepare for spill response before using or handling this product. Eliminate all ignition sources (flames, hot surfaces, portable heaters and sources of electrical, static, or frictional sparks). Dike and contain spill

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with inert material (e.g. sand, earth). Transfer liquids to covered and labeled metal containers for recovery or disposal, or remove with inert absorbent. Use only non-sparking tools and appropriate PPE. Place absorbent diking materials in covered metal containers for disposal. Prevent contamination of sewers, streams, and groundwater with spilled material or used absorbent.

7. HANDLING AND STORAGE

GENERAL PROCEDURES: For professional or industrial use only. Follow label instructions. Keep out of the reach of children. Not for consumption. No smoking. Do not breathe vapors. Avoid contact with body. Turn off all pilot lights, flames, stoves, heaters, electric motors, welding equipment and other sources of ignition. Empty containers must not be washed and re-used for any purpose. Contact lens wearers must wear protective eye wear around chemical vapors and liquid. Wash hands thoroughly after handling. Flammable vapors may cause flash fire or ignite explosively. To prevent build-up of vapors, use adequate natural and/or mechanical ventilation (e.g. open all windows and doors to achieve cross ventilation). Containers may be hazardous when empty. Never use welding or cutting torch on or near container. Do not cut, drill, grind, or expose containers to heat, sparks, static electricity or other source of ignition. Explosion may occur causing injury or death.

HANDLING: Use adequate ventilation and appropriate respiratory protection to avoid breathing vapors when cover is removed. Ground and bond all equipment when handling flammable solvent-borne material.

STORAGE: Keep container closed when not in use. Store in a dry well ventilated area, out of the sun and away from ignition sources. Do not remove or deface label. Prevent water or moist air from entering container.

STORAGE TEMPERATURE: 15.5°C (60°F) Minimum to 35°C (95°F) Maximum

SHELF LIFE: 1 year from manufacture date

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

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EXPOSURE GUIDELINES

| OSHA HAZARDOUS COMPONENTS (29 CFR1910.1200) | | | | | |
|--|------|------------------------|---------------------------------------|-------------------|------------------------|
| | | EXPOSURE LIMITS | | | |
| | | OSHA PEL | | ACGIH TLV | |
| Chemical Name | | ppm | mg/m ³ | ppm | mg/m ³ |
| n-Hexane | TWA | 500 ppm ^[1] | 1800 mg/m ³ ^[1] | 50 ppm | 176 mg/m ³ |
| | STEL | NL ^[2] | NL ^[2] | NL ^[2] | NL ^[2] |
| Low Boiling Point Naphtha - Solvent Naphtha (petroleum), Light Aliph. | TWA | 400 ppm | NL | 400 ppm | NL |
| | STEL | NL ^[2] | NL ^[2] | NL ^[2] | NL ^[2] |
| n-Heptane | TWA | 500 ppm ^[1] | 2000 mg/m ³ ^[1] | 400 ppm | 1640 mg/m ³ |
| | STEL | NL ^[2] | NL ^[2] | 500 ppm | 2050 mg/m ³ |
| Cyclohexane | TWA | 300 ppm ^[1] | 1050 mg/m ³ ^[1] | 100 ppm | 334 mg/m ³ |
| | STEL | NL ^[2] | NL ^[2] | NL ^[2] | NL ^[2] |
| Silica, Crystalline | TWA | NL | 0.1 mg/m ³ | NL | 0.05 mg/m ³ |
| | STEL | NL ^[2] | NL ^[2] | NL ^[2] | NL ^[2] |

Footnotes:
 1. OSHA limits per 29 CFR 1910.1000 Table Z-1 & Z-2
 2. NL = Not Listed

ENGINEERING CONTROLS: Provide sufficient explosion proof mechanical (general and/or local exhaust) ventilation to maintain exposure below the occupational exposure limit and exposure concentration.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: Wear safety glasses with side shields (or goggles) or a full face respirator.

SKIN: Wear chemical protective clothing & boots to prevent repeated or prolonged skin contact.

RESPIRATORY: NIOSH/MSHA approved air purifying respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection. A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.

PROTECTIVE CLOTHING: Wear chemical resistant gloves, such as nitrile rubber.

WORK HYGIENIC PRACTICES: Wash hands thoroughly after use.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Liquid

ODOR: Solvent-like

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COLOR: Tan

PERCENT VOLATILE: 29.8

Notes: by weight

BOILING POINT: 64°C (120.7°F) to 90°C (194°F)

FLASHPOINT AND METHOD: -23°C (-9.4°F)

SOLUBILITY IN WATER: Slight

EVAPORATION RATE: > 1.0 (n-Butyl Acetate=1)

DENSITY: 9.47 lbs/gal

SPECIFIC GRAVITY: 1.136

(VOC): 338.700 gr/L EPA Method 24 VOC

Notes: Photochemically Reactive Only VOC: 338.7 gr/L

COMMENTS: 0.17 lb VHAP/lb Solid
11.8% by weight HAP

10. STABILITY AND REACTIVITY

STABLE: Yes

HAZARDOUS POLYMERIZATION: No

STABILITY: Stable.

POLYMERIZATION: Product will not undergo polymerization.

CONDITIONS TO AVOID: Avoid fire, sparks, static electricity and hot surfaces.

POSSIBILITY OF HAZARDOUS REACTIONS: None Expected.

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide and carbon dioxide may form when heated to decomposition.

INCOMPATIBLE MATERIALS: Strong oxidizing agents, strong acids and strong bases.

11. TOXICOLOGICAL INFORMATION

ACUTE

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| Chemical Name | ORAL LD ₅₀ (rat) | DERMAL LD ₅₀ (rabbit) | INHALATION LC ₅₀ (rat) |
|---|-----------------------------|----------------------------------|-----------------------------------|
| n-Hexane | 25000 mg/kg | No data | 48000 ppm |
| Low Boiling Point Naphtha - Solvent Naphtha (petroleum), Light Aliph. | > 2000 mg/kg | > 2000 mg/kg | > 5000 ppm (1-hr dose) |
| n-Heptane | > 2000 mg/kg | > 2000 mg/kg | > 5000 ppm (1-hr dose) |
| Cyclohexane | 12705 mg/kg | No data | No data |
| Silica, Crystalline | No data | No data | No data |

CARCINOGENICITY

| Chemical Name | NTP Status | IARC Status |
|---------------------|------------|-------------|
| Silica, Crystalline | 1 | 1 |

IARC: IARC has concluded that "crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group I)."

Notes: This product contains silica, quartz, a chemical known to the State of California to cause cancer.

IRRITATION: Eyes, nose, throat, respiratory tract irritation.

CORROSIVITY: Not Applicable

SENSITIZATION: Not Applicable

NEUROTOXICITY: Not Applicable

GENETIC EFFECTS: Not Applicable

REPRODUCTIVE EFFECTS: Not Applicable

TERATOGENIC EFFECTS: Not Applicable

MUTAGENICITY: Not Applicable

SYNERGISTIC MATERIALS: The neurotoxic effects of n-hexane vapor can be enhanced in rats by both methyl ethyl ketone (MEK) and lead acetate, but are decreased by toluene. Toluene and xylene prevent testicular atrophy by n-hexane.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL DATA: This product contains components that will normally float on water. These components may be harmful to aquatic organisms and may cause long term adverse effects in the aquatic environment.

ECOTOXICOLOGICAL INFORMATION: Contains components that are potentially toxic to freshwater and saltwater ecosystems.

BIOACCUMULATION/ACCUMULATION: Contains components with the potential to bio-accumulate.

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13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Dispose of in accordance with all local, state and federal regulations.

14. TRANSPORT INFORMATION

DOT (DEPARTMENT OF TRANSPORTATION)

PROPER SHIPPING NAME: Adhesives

PRIMARY HAZARD CLASS/DIVISION: 3

UN/NA NUMBER: 1133

PACKING GROUP: II

NAERG: 128

MARINE POLLUTANT #1: None

OTHER SHIPPING INFORMATION: contains (n-Hexane, n-Heptane)

SPECIAL SHIPPING NOTES: If individual container size is less than 1.3 gallons, the proper shipping name is:
ORM-D Consumer Commodity
Non-Regulated

15. REGULATORY INFORMATION

UNITED STATES

DOT LABEL SYMBOL AND HAZARD CLASSIFICATION



Flammable Liquid

** for containers > 1.3 gallons (4.9 Liters) **

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

FIRE: Yes **PRESSURE GENERATING:** No **REACTIVITY:** No **ACUTE:** Yes **CHRONIC:** Yes

EPCRA SECTION 313 SUPPLIER NOTIFICATION

| Chemical Name | Wt. % | CAS |
|---------------|--------|-------------|
| n-Hexane | 7 - 13 | 000110-54-3 |
| Cyclohexane | 1 - 5 | 000110-82-7 |

CERCLA (COMPREHENSIVE RESPONSE, COMPENSATION, AND LIABILITY ACT)

| Chemical Name | Wt. % | CERCLA RQ |
|---------------|--------|------------|
| n-Hexane | 7 - 13 | 5,000 lbs. |
| Cyclohexane | 1 - 5 | 1,000 lbs. |

TSCA (TOXIC SUBSTANCE CONTROL ACT)

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| Chemical Name | CAS | TSCA SECTION |
|---|-------------|--------------|
| n-Hexane | 000110-54-3 | |
| Low Boiling Point Naphtha - Solvent Naphtha (petroleum), Light Aliph. | 064742-89-8 | |
| n-Heptane | 000142-82-5 | 12b, |
| Cyclohexane | 000110-82-7 | |
| Silica, Crystalline | 014808-60-7 | |

CLEAN AIR ACT

| Chemical Name | Wt.% | CAS |
|---------------|--------|-------------|
| n-Hexane | 7 - 13 | 000110-54-3 |

STATES WITH SPECIAL REQUIREMENTS

| Chemical Name | Requirements |
|---|--|
| n-Hexane | New Jersey Right to Know List Pennsylvania Right to Know List Massachusetts Toxic Use Reduction Act (TURA) Reportable Chemical |
| Low Boiling Point Naphtha - Solvent Naphtha (petroleum), Light Aliph. | Pennsylvania Right to Know List |
| n-Heptane | New Jersey Right to Know List Pennsylvania Right to Know List |
| Cyclohexane | New Jersey Right to Know List Pennsylvania Right to Know List Massachusetts Toxic Use Reduction Act (TURA) Reportable Chemical |
| Silica, Crystalline | New Jersey Right to Know List Pennsylvania Right to Know List Massachusetts Toxic Use Reduction Act (TURA) Reportable Chemical |

CALIFORNIA PROPOSITION 65

| Chemical Name | Wt.% | Listed |
|---------------------|-------|----------|
| Silica, Crystalline | < 0.5 | • Cancer |

CANADA

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WHMIS HAZARD SYMBOL AND CLASSIFICATION



Flammable Liquid



Toxic

EUROPEAN COMMUNITY

EEC LABEL SYMBOL AND CLASSIFICATION



"F" - Highly flammable



"N" - Dangerous for the environment



"Xn" - Harmful

16. OTHER INFORMATION

PREPARED BY: EHS Department

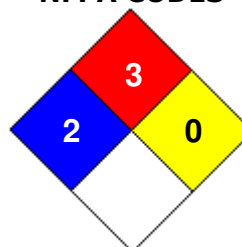
INFORMATION CONTACT: (781) 878-7015

REVISION SUMMARY: Revision #: 20 This MSDS replaces the November 05, 2009 MSDS. Any changes in information are as follows: In Section 1 Comments

HMIS RATING

| | | |
|-----------------------------|----------|----------|
| HEALTH: | * | 2 |
| FLAMMABILITY: | | 3 |
| PHYSICAL HAZARD: | | 0 |
| PERSONAL PROTECTION: | B | |

NFPA CODES



GENERAL STATEMENTS: Keep out of reach of children

For professional or industrial use only

If you cannot read, or do not understand all directions, cautions, and warnings, do not use this product

For spray applications, use only with approved equipment

MANUFACTURER DISCLAIMER:

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