

Safety Data Sheet

Issue Date 01-Jun-2010

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Version 1

1. IDENTIFICATION

Product Identifier

Product Name ARROW 1122 FLEX Low-VOC Solvent Cement for PVC Plastic Pipe

Other means of identification

SDS # AAC-1122

UN/ID No UN1133
Product Code 1122, AA-1122

Recommended use of the chemical and restrictions on use

Recommended Use Low-VOC solvent cement for PVC plastic pipe

Details of the supplier of the safety data sheet

Supplier Address
Arrow Adhesives Company
5457 Spalding Dr.
Norcross, GA 30092

Emergency Telephone Number

Company Phone Number 1-800-678-9058
Emergency Telephone (24 hr) INFOTRAC 1-800-535-5053 (North America) 1-352-323-3500 (International)

2. HAZARDS IDENTIFICATION

Appearance Clear liquid

Physical State Liquid

Odor Ether-like

Classification

| | |
|--|------------|
| Acute toxicity - Oral | Category 4 |
| Serious eye damage/eye irritation | Category 2 |
| Carcinogenicity | Category 2 |
| Specific target organ toxicity (single exposure) | Category 3 |
| Flammable Liquids | Category 2 |

Signal Word

Danger

Hazard Statements

Harmful if swallowed
Causes serious eye irritation
Suspected of causing cancer
May cause respiratory irritation. May cause drowsiness or dizziness
Highly flammable liquid and vapor



Precautionary Statements - Prevention

Obtain special instructions before use
 Do not handle until all safety precautions have been read and understood
 Use personal protective equipment as required
 Wash face, hands and any exposed skin thoroughly after handling
 Do not eat, drink or smoke when using this product
 Wear eye/face protection
 Avoid breathing dust/fume/gas/mist/vapors/spray
 Use only outdoors or in a well-ventilated area
 Keep away from heat/sparks/open flames/hot surfaces. — No smoking
 Keep container tightly closed
 Ground/bond container and receiving equipment
 Use explosion-proof equipment
 Use only non-sparking tools
 Take precautionary measures against static discharge
 Keep cool

Precautionary Statements - Response

If exposed or concerned: Get medical advice/attention
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
 Immediately call a POISON CENTER or doctor/physician
 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
 Immediately call a POISON CENTER or doctor/physician
 IF SWALLOWED: Call a poison center or doctor/physician
 Rinse mouth
 IN CASE OF FIRE: Use CO2, dry chemical, or foam for extinction

Precautionary Statements - Storage

Store in a well-ventilated place. Keep container tightly closed
 Store locked up
 Keep cool

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

WHMIS Classification

Class B-Division 2 Class D-Division 2A Class D-Division 2B

Other Hazards

Harmful to aquatic life with long lasting effects

Unknown Acute Toxicity

10% of the mixture consists of ingredient(s) of unknown toxicity

| 3. COMPOSITION/INFORMATION ON INGREDIENTS | | |
|--|---------------|-----------------|
| Chemical Name | CAS No | Weight-% |
| Tetrahydrofuran | 109-99-9 | Proprietary |
| Methyl ethyl ketone | 78-93-3 | Proprietary |
| Cyclohexanone | 108-94-1 | Proprietary |
| Acetone | 67-64-1 | Proprietary |
| PVC Resin | 9002-86-2 | Proprietary |

* The exact percentage (concentration) of composition has been withheld as a trade secret

4. FIRST-AID MEASURES

First Aid Measures

| | |
|-----------------------|--|
| General Advice | If exposed or concerned: Get medical advice/attention. |
| Eye Contact | In case of irritation from airborne exposure, move to fresh air. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Seek immediate medical attention/advice. |
| Skin Contact | Take off contaminated clothing. Wash with soap and water. If symptoms persist, call a physician. Wash contaminated clothing before reuse. |
| Inhalation | Remove to fresh air. If symptoms persist, call a physician. If breathing is difficult, give oxygen. Get medical attention immediately. |
| Ingestion | Rinse mouth. Seek medical attention. If drowsy or unconscious, do not give anything by mouth; place individual on the left side with head down. Do not induce vomiting. |

Most important symptoms and effects

| | |
|-----------------|--|
| Symptoms | Exposed individuals may experience eye tearing, redness, and discomfort. Prolonged or repeated skin contact may result in dermatitis (red, dry skin). May cause nose and throat irritation, with possible central nervous system effects. Long term overexposure may cause liver and kidney damage. May cause respiratory irritation. Fatigue and weakness. May cause drowsiness or dizziness. |
|-----------------|--|

Indication of any immediate medical attention and special treatment needed

| | |
|---------------------------|---|
| Notes to Physician | Treat symptomatically. Individuals with chronic respiratory, skin, kidney, or liver disorders may be at increased risk from exposure. |
|---------------------------|---|

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Foam. Carbon dioxide (CO₂). Dry chemical.

Unsuitable Extinguishing Media Not determined.

Specific Hazards Arising from the Chemical

Class IB Flammable Liquid. Vapors may travel to source of ignition and flash back.

Hazardous Combustion Products Carbon oxides. Various hydrocarbon vapors and toxic gases.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

| | |
|----------------------------------|---|
| Personal Precautions | Use personal protective equipment as required. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Persons not wearing proper personal protective equipment should be excluded from area of spill. |
| Environmental Precautions | Do not allow into any sewer, on the ground or into any body of water. See Section 12 for additional Ecological Information. |

Methods and material for containment and cleaning up

| | |
|--------------------------------|--|
| Methods for Containment | Prevent further leakage or spillage if safe to do so. |
| Methods for Clean-Up | Pump or vacuum transfer spilled product to clean containers for recovery. Absorb unrecoverable product. Transfer contaminated absorbent, soil and other materials to containers for disposal. For waste disposal, see section 13 of the SDS. |

7. HANDLING AND STORAGE

Precautions for safe handling

| | |
|--------------------------------|--|
| Advice on Safe Handling | Wash thoroughly after handling. Use personal protection recommended in Section 8. Do not eat, drink or smoke when using this product. Avoid breathing vapors or mists. Use only in well-ventilated areas. Ground/bond container and receiving equipment. Keep away from heat/sparks/open flames/hot surfaces. — No smoking. Use spark-proof tools and explosion-proof equipment. Take precautionary measures against static discharges. Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, solid) all hazard precautions given in the data sheet must be observed. Avoid prolonged contact with eyes, skin, and clothing. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. |
|--------------------------------|--|

Conditions for safe storage, including any incompatibilities

| | |
|-------------------------------|--|
| Storage Conditions | Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Store containers upright. Store away from heat, sparks, flame. |
| Incompatible Materials | Oxidizers. Acids. Bases. |

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

| Chemical Name | ACGIH TLV | OSHA PEL | NIOSH IDLH |
|--------------------------------|--|---|--|
| Tetrahydrofuran 109-99-9 | STEL: 100 ppm TWA: 50 ppm S* | TWA: 200 ppm TWA: 590 mg/m ³ (vacated) TWA: 200 ppm (vacated) TWA: 590 mg/m ³ (vacated) STEL: 250 ppm (vacated) STEL: 735 mg/m ³ | IDLH: 2000 ppm TWA: 200 ppm TWA: 590 mg/m ³ STEL: 250 ppm STEL: 735 mg/m ³ |
| Acetone 67-64-1 | STEL: 750 ppm TWA: 500 ppm | TWA: 1000 ppm TWA: 2400 mg/m ³ (vacated) TWA: 750 ppm (vacated) TWA: 1800 mg/m ³ (vacated) STEL: 2400 mg/m ³ The acetone STEL does not apply to the cellulose acetate fiber industry. It is in effect for all other sectors (vacated) STEL: 1000 ppm | IDLH: 2500 ppm TWA: 250 ppm TWA: 590 mg/m ³ |
| Methyl ethyl ketone 78-93-3 | STEL: 300 ppm TWA: 200 ppm | TWA: 200 ppm TWA: 590 mg/m ³ (vacated) TWA: 200 ppm (vacated) TWA: 590 mg/m ³ (vacated) STEL: 300 ppm (vacated) STEL: 885 mg/m ³ | IDLH: 3000 ppm TWA: 200 ppm TWA: 590 mg/m ³ STEL: 300 ppm STEL: 885 mg/m ³ |
| Cyclohexanone 108-94-1 | STEL: 50 ppm TWA: 20 ppm S* | TWA: 50 ppm TWA: 200 mg/m ³ (vacated) TWA: 25 ppm (vacated) TWA: 100 mg/m ³ (vacated) S* | IDLH: 700 ppm TWA: 25 ppm TWA: 100 mg/m ³ |
| PVC Resin 9002-86-2 | TWA: 1 mg/m ³ respirable fraction | - | - |

Appropriate engineering controls

Engineering Controls Apply technical measures to comply with the occupational exposure limits. Ventilation systems. Showers. Eyewash stations.

Individual protection measures, such as personal protective equipment

Eye/Face Protection Splash goggles or safety glasses.

Skin and Body Protection Rubber gloves. Use body protection appropriate for task.

Respiratory Protection Not required under normal conditions. If recommended levels are exceeded, respiratory protection must be selected to assure compliance with OSHA Standard 29CFR 1910.134.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

| | | | |
|-----------------------|--------------|-----------------------|----------------|
| Physical State | Liquid | Odor | Ether-like |
| Appearance | Clear liquid | Odor Threshold | Not determined |
| Color | Clear | | |

| <u>Property</u> | <u>Values</u> | <u>Remarks • Method</u> |
|-------------------------------------|--|--------------------------------|
| pH | Not available | |
| Melting Point/Freezing Point | Not determined | |
| Boiling Point/Boiling Range | 56 °C / 133 °F | |
| Flash Point | -20 °C / -4 °F | |
| Evaporation Rate | > 1.0 | (butyl acetate = 1) |
| Flammability (Solid, Gas) | n/a-liquid | |
| Upper Flammability Limits | 12.8% | |
| Lower Flammability Limit | 1.8% | |
| Vapour Pressure | 190 mm Hg | @ 20°C (68°F) |
| Vapor Density | 2.5 | (Air=1) |
| Specific Gravity | 0.910 | |
| Water Solubility | Negligible | |
| Solubility in other solvents | Not determined | |
| Partition Coefficient | Not determined | |
| Auto-ignition Temperature | Not determined | |
| Decomposition Temperature | Not determined | |
| Kinematic Viscosity | Not determined | |
| Dynamic Viscosity | Not determined | |
| Explosive Properties | Not determined | |
| Oxidizing Properties | Not determined | |
| VOC Content | Maximum VOC emissions when applied and tested per SCAQMD Rule 1168, Test Method 316A is <= 510 g/L | |

10. STABILITY AND REACTIVITY**Reactivity**

Not reactive under normal conditions.

Chemical Stability

Stable under recommended storage conditions.

Possibility of Hazardous Reactions

None under normal processing.

Hazardous Polymerization Hazardous polymerization does not occur.

Conditions to Avoid

Avoid heat, sparks, open flames and other ignition sources.

Incompatible Materials

Oxidizers. Acids. Bases.

Hazardous Decomposition Products

Carbon oxides. Hydrogen chloride. Other various hydrocarbons.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure**Product Information**

| | |
|---------------------|----------------------------------|
| Eye Contact | Causes serious eye irritation. |
| Skin Contact | Avoid contact with skin. |
| Inhalation | Avoid breathing vapors or mists. |
| Ingestion | Harmful if swallowed. |

Component Information

| Chemical Name | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|--------------------------------|----------------------|-------------------------|---|
| Tetrahydrofuran 109-99-9 | = 1650 mg/kg (Rat) | - | = 53.9 mg/L (Rat) 4 h = 180 mg/L (Rat) 1 h |
| Acetone 67-64-1 | = 5800 mg/kg (Rat) | - | - |
| Methyl ethyl ketone 78-93-3 | = 2737 mg/kg (Rat) | = 6480 mg/kg (Rabbit) | - |
| Cyclohexanone 108-94-1 | = 800 mg/kg (Rat) | = 948 mg/kg (Rabbit) | = 10.7 mg/L (Rat) 4 h = 8000 ppm (Rat) 4 h |

Information on physical, chemical and toxicological effects

Symptoms Please see section 4 of this SDS for symptoms.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen. However, the product as a whole has not been tested.

| Chemical Name | ACGIH | IARC | NTP | OSHA |
|-----------------------------|-------|---------|-----|------|
| Tetrahydrofuran 109-99-9 | A3 | | | |
| Cyclohexanone 108-94-1 | A3 | Group 3 | | |
| PVC Resin 9002-86-2 | | Group 3 | | |

Legend

ACGIH (American Conference of Governmental Industrial Hygienists)

A3 - Animal Carcinogen

IARC (International Agency for Research on Cancer)

Group 3 IARC components are "not classifiable as human carcinogens"

STOT - single exposure May cause respiratory irritation. May cause drowsiness or dizziness.

Numerical measures of toxicity

Not determined

Unknown Acute Toxicity 10% of the mixture consists of ingredient(s) of unknown toxicity.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Harmful to aquatic life with long lasting effects.

| Chemical Name | Algae/aquatic plants | Fish | Toxicity to microorganisms | Crustacea |
|--------------------------------|--|---|---|---|
| Tetrahydrofuran 109-99-9 | | 1970 - 2360: 96 h Pimephales promelas mg/L LC50 flow-through 2700 - 3600: 96 h Pimephales promelas mg/L LC50 static | | 5930: 24 h Daphnia magna mg/L EC50 |
| Acetone 67-64-1 | | 4.74 - 6.33: 96 h Oncorhynchus mykiss mL/L LC50 6210 - 8120: 96 h Pimephales promelas mg/L LC50 static 8300: 96 h Lepomis macrochirus mg/L LC50 | EC50 = 14500 mg/L 15 min | 10294 - 17704: 48 h Daphnia magna mg/L EC50 Static 12600 - 12700: 48 h Daphnia magna mg/L EC50 |
| Methyl ethyl ketone 78-93-3 | | 3130 - 3320: 96 h Pimephales promelas mg/L LC50 flow-through | EC50 = 3403 mg/L 30 min EC50 = 3426 mg/L 5 min | 520: 48 h Daphnia magna mg/L EC50 5091: 48 h Daphnia magna mg/L EC50 4025 - 6440: 48 h Daphnia magna mg/L EC50 Static |
| Cyclohexanone 108-94-1 | 20: 96 h Chlorella vulgaris mg/L EC50 | 481 - 578: 96 h Pimephales promelas mg/L LC50 flow- through 8.9: 96 h Pimephales promelas mg/L LC50 | EC50 = 18.5 mg/L 5 min EC50 = 21.3 mg/L 10 min EC50 = 25 mg/L 5 min | 800: 24 h Daphnia magna mg/L EC50 |

Persistence/Degradability

Not determined.

Bioaccumulation

Not determined.

Mobility

| Chemical Name | Partition Coefficient |
|--------------------------------|-----------------------|
| Tetrahydrofuran 109-99-9 | 0.45 |
| Methyl ethyl ketone 78-93-3 | 0.29 |
| Cyclohexanone 108-94-1 | 0.86 |
| Acetone 67-64-1 | -0.24 |

Other Adverse Effects

Not determined

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods

- Disposal of Wastes** Disposal should be in accordance with applicable regional, national and local laws and regulations.
- Contaminated Packaging** Disposal should be in accordance with applicable regional, national and local laws and regulations.

US EPA Waste Number

| Chemical Name | RCRA | RCRA - Basis for Listing | RCRA - D Series Wastes | RCRA - U Series Wastes |
|--------------------------------|------|--|-----------------------------|------------------------|
| Tetrahydrofuran 109-99-9 | | | | U213 |
| Acetone 67-64-1 | | Included in waste stream: F039 | | U002 |
| Methyl ethyl ketone 78-93-3 | U159 | Included in waste streams: F005, F039 | 200.0 mg/L regulatory level | U159 |
| Cyclohexanone 108-94-1 | | Included in waste stream: F039 | | U057 |

California Hazardous Waste Status

| Chemical Name | California Hazardous Waste Status |
|--------------------------------|-----------------------------------|
| Tetrahydrofuran 109-99-9 | Toxic Ignitable |
| Methyl ethyl ketone 78-93-3 | Toxic Ignitable |
| Acetone 67-64-1 | Ignitable |

14. TRANSPORT INFORMATION

Note Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances. Shipments of containers holding 1 liter or less in volume may qualify for a "Limited Quantity" exception. Refer to 49 CFR 173.150 for additional information.

DOT
 UN/ID No UN1133
 Proper Shipping Name Adhesives
 Hazard Class 3
 Packing Group II

IATA
 UN/ID No UN1133
 Proper Shipping Name Adhesives
 Hazard Class 3
 Packing Group II

IMDG
 UN/ID No UN1133
 Proper Shipping Name Adhesives
 Hazard Class 3
 Packing Group II
 Marine Pollutant This material may meet the definition of a marine pollutant

15. REGULATORY INFORMATION

International Inventories

TSCA Listed

Legend:

- TSCA - United States Toxic Substances Control Act Section 8(b) Inventory*
- DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List*
- EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances*
- ENCS - Japan Existing and New Chemical Substances*
- IECSC - China Inventory of Existing Chemical Substances*
- KECL - Korean Existing and Evaluated Chemical Substances*
- PICCS - Philippines Inventory of Chemicals and Chemical Substances*

US Federal Regulations

CERCLA

| Chemical Name | Hazardous Substances RQs | CERCLA/SARA RQ | Reportable Quantity (RQ) |
|--------------------------------|--------------------------|----------------|--|
| Tetrahydrofuran 109-99-9 | 1000 lb | | RQ 1000 lb final RQ RQ 454 kg final RQ |
| Methyl ethyl ketone 78-93-3 | 5000 lb | | RQ 5000 lb final RQ RQ 2270 kg final RQ |
| Cyclohexanone 108-94-1 | 5000 lb | | RQ 5000 lb final RQ RQ 2270 kg final RQ |
| Acetone 67-64-1 | 5000 lb | | RQ 5000 lb final RQ RQ 2270 kg final RQ |

SARA 313

Not determined

US State Regulations

U.S. State Right-to-Know Regulations

| Chemical Name | New Jersey | Massachusetts | Pennsylvania |
|--------------------------------|------------|---------------|--------------|
| Tetrahydrofuran 109-99-9 | X | X | X |
| Acetone 67-64-1 | X | X | X |
| Methyl ethyl ketone 78-93-3 | X | X | X |
| Cyclohexanone 108-94-1 | X | X | X |
| PVC Resin 9002-86-2 | X | | |

| |
|------------------------------|
| 16. OTHER INFORMATION |
|------------------------------|

| | | | | |
|--------------------|-----------------------|---------------------|-------------------------|----------------------------|
| <u>NFPA</u> | Health Hazards | Flammability | Instability | Special Hazards |
| | 2 | 3 | 1 | None |
| <u>HMIS</u> | Health Hazards | Flammability | Physical Hazards | Personal Protection |
| | 2 | 3 | 1 | G |

| | |
|-----------------------|-------------|
| Issue Date | 01-Jun-2010 |
| Revision Date: | 02-Oct-2013 |
| Revision Note | New format |

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet