

**Section 1 - Chemical Product and Company Identification****Product Name** PVC Adhesives**CAS#** Mixture/None Assigned**Generic Name** Adhesive**Formula** Mixture**Chemical Name:** Mixture**Hazard Label** SOL-XF**Manufacturer Information**

Johns Manville

Performance Materials Division

P.O. Box 5108

Denver, CO 80127 USA

Telephone: 303-978-2000 8:00AM-5:00PM M-F

Internet Address: <http://www.jm.com>

Emergency: 800-424-9300 (Chemtrec, In English)

**Trade Names:** Ceel-Co® and/or Ceel-Tite® Adhesive, Clear or White; Zeston® Perma-Weld Adhesive, Clear or White**Section 2 - Composition / Information on Ingredients**

CAS #	Component	Percent
109-99-9	Tetrahydrofuran	45-60
78-93-3	Methyl ethyl ketone	20-30
9003-22-9	Vinyl chloride-Vinyl acetate copolymer	20-30
13463-67-7	Titanium dioxide (colorant)	1-5*
67-63-0	Isopropyl alcohol	1-5
67-64-1	Acetone	1-5
108-05-4	Vinyl acetate	0.1-5

**Additional Component Information**

\* In white adhesive only.

**Section 3 - Hazards Identification****Emergency Overview**

APPEARANCE AND ODOR: Clear or white liquid. Solvent odor.

Extremely flammable liquid and vapor. Vapor may cause flash fire. Use water spray to cool materials in or near a fire. Fire may be difficult to extinguish. Vapors may travel, and can be ignited by a remote source.

Inhalation of vapors may cause upper respiratory irritation or central nervous system depression - remove affected individuals to fresh air.

HMIS Ratings: Health = 2\* Fire = 3 Reactivity = 0

\* indicates a chronic effects

**Potential Health Effects****Summary**

Vapors from this product may cause eye and upper respiratory irritation, dry throat and mouth, nausea, headache, dizziness, drowsiness, and coma in extreme cases. Prolonged exposures may lead to liver and kidney injury.

**Inhalation**

Excessive inhalation of vapors may cause nasal and respiratory irritation and central nervous system effects including dizziness, weakness, fatigue, nausea, headache, and possible unconsciousness.

**Skin**

Irritation may occur with burns if not removed.

**Absorption**

Can pass through skin and cause symptoms similar to those resulting from swallowing or inhalation.

**Ingestion**

This product is not intended to be ingested or eaten under normal conditions of use. If ingested, it may cause gastrointestinal (GI) irritation, nausea, vomiting, and diarrhea.

**Eyes**

Irritation may occur with burns if not removed.

**Primary Routes of Entry (Exposure)**

Inhalation, skin, and eye contact.

**Target Organs**

Upper respiratory passages, central nervous system, skin, eyes, liver, kidney.

**Medical Conditions Aggravated by Exposure**

Pre-existing chronic eye, skin, respiratory, liver, or kidney diseases or conditions

**Section 4 - First Aid Measures**

**First Aid: Inhalation**

Remove to fresh air.

**First Aid: Skin**

Remove contaminated clothing. Wash exposed areas with soap and water. If irritation develops or persists, seek medical attention. Launder contaminated clothing before reuse.

**First Aid: Ingestion**

Product is not intended to be ingested or eaten. If this product is ingested, do not induce vomiting and seek medical attention. Do not make an unconscious person vomit.

**First Aid: Eyes**

Flush eyes with large amounts of water for 5-15 minutes. If irritation develops, or persists, seek medical attention.

**First Aid: Notes to Physician**

Treatment for inhalation of vapors should be symptomatic with supportive therapy. Skin and eye contact may be treated by washing the exposed area. Removal from exposure will generally result in complete recovery.

**Section 5 - Fire Fighting Measures**

**Flash Point:** -14.4°C/6°F

**Upper Flammable Limit (UFL):** Not determined.

**Auto Ignition:** Not determined

**Rate of Burning:** Not determined

**General Fire Hazards**

EXTREMELY FLAMMABLE liquid and vapor. May cause flash fire. Keep away from heat, sparks and flame. Keep container closed. Use with adequate ventilation. Containers exposed to elevated temperatures (such as heat or flames) may develop pressure build-up and rupture. Vapors may travel, and can be ignited by a remote source.

"Empty" container warning: "Empty" containers retain residue (liquid and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury and death.

**Extinguishing Media**

Dry chemical, foam, carbon dioxide.

NFPA Ratings: Health = 2 Fire = 3 Reactivity = 1

**Fire Fighting Equipment/Instructions**

Firefighters should wear full-face, self contained breathing apparatus and impervious protective clothing. Firefighters should avoid inhaling any combustion products.

**Section 6 - Accidental Release Measures**

**Containment Procedures**

Remove all sources of ignition. Evacuate and ventilate spill area. Dam spill area with sand, earth, or other suitable absorbent. Prevent entry of material into sewers, other water sources, or land areas. Wear full protective clothing and respiratory protection during clean-up as required to maintain exposures below the applicable exposure limit. Shovel absorbed material into containers in well-ventilated area.

**Clean-Up Procedures**

No additional information available.

**Section 7 - Handling and Storage****Handling Procedures**

Use protective equipment as described in Section 8 of this material safety data sheet when handling uncontained material. Keep this material and vapors from this material away from ignition sources, such as heat, sparks, pilot lights, static electricity, and open flames. Containers exposed to elevated temperatures (such as heat or flames) may develop pressure build-up and rupture. Keep containers sealed when not in use and clean spills promptly to reduce air concentrations and floor hazards.

**Storage Procedures**

No additional information available.

**Section 8 - Exposure Controls / Personal Protection****Exposure Guidelines****A: General Product Information**

Protective equipment should be used as necessary to prevent irritation of the throat, eyes, and skin, and to keep exposures below the applicable exposure limits identified in Section 8.

**B: Component Exposure Limits****Tetrahydrofuran (109-99-9)**

ACGIH: 50 ppm TWA  
100 ppm STEL  
Skin - potential significant contribution to overall exposure by the cutaneous route  
OSHA: 200 ppm TWA; 590 mg/m<sup>3</sup> TWA  
250 ppm STEL; 735 mg/m<sup>3</sup> STEL

**Methyl ethyl ketone (78-93-3)**

ACGIH: 200 ppm TWA  
300 ppm STEL  
OSHA: 200 ppm TWA; 590 mg/m<sup>3</sup> TWA  
300 ppm STEL; 885 mg/m<sup>3</sup> STEL

**Acetone (67-64-1)**

ACGIH: 500 ppm TWA  
750 ppm STEL  
OSHA: 750 ppm TWA; 1800 mg/m<sup>3</sup> TWA  
1000 ppm STEL; 2400 mg/m<sup>3</sup> STEL (The acetone STEL does not apply to the cellulose acetate fiber industry. It is in effect for all other sectors)

**Titanium dioxide (colorant) (13463-67-7)**

ACGIH: 10 mg/m<sup>3</sup> TWA  
OSHA: 10 mg/m<sup>3</sup> TWA (total dust)

**Isopropyl alcohol (67-63-0)**

ACGIH: 200 ppm TWA  
400 ppm STEL  
OSHA: 400 ppm TWA; 980 mg/m<sup>3</sup> TWA  
500 ppm STEL; 1225 mg/m<sup>3</sup> STEL

**Vinyl acetate (108-05-4)**

ACGIH: 10 ppm TWA  
15 ppm STEL  
OSHA: 10 ppm TWA; 30 mg/m<sup>3</sup> TWA  
20 ppm STEL; 60 mg/m<sup>3</sup> STEL

**PERSONAL PROTECTIVE EQUIPMENT****Personal Protective Equipment: Eyes/Face**

Safety glasses with sideshields or chemical splash goggles are recommended to prevent splashing of material in eyes.

**Personal Protective Equipment: Skin**

Solvent-resistant gloves are recommended, such as polyvinyl alcohol.

**Personal Protective Equipment: Respiratory**

If vapor levels are above the applicable exposure limits, a NIOSH-approved organic vapor respirator must be provided and worn.

**Ventilation**

Local exhaust ventilation should be provided at areas of use to remove gases & vapors from work area. General dilution ventilation should be provided as necessary to keep gases & vapors below the applicable exposure limits and guidelines. The need for ventilation systems should be evaluated by a professional industrial hygienist, while the design of specific ventilation systems should be conducted by a professional engineer.

**Personal Protective Equipment: General**

An apron or coveralls impervious to chemicals can be used to protect clothing. Wash exposed skin after contact, before breaks and meals, and at end of work period.

**Section 9 - Physical & Chemical Properties**

<b>Appearance:</b>	Clear or white	<b>Odor:</b>	solvent odor
<b>Physical State:</b>	liquid	<b>pH:</b>	Not determined
<b>Vapor Pressure:</b>	Not determined		
<b>Boiling Point:</b>	62.8-68.3°C/145-155°F	<b>Melting Point:</b>	Not determined
<b>Solubility (H<sub>2</sub>O):</b>	Not soluble	<b>Specific Gravity:</b>	0.95-0.975
<b>Freezing Point:</b>	Not determined	<b>Evaporation Rate:</b>	Faster than ether
<b>Viscosity:</b>	Not determined	<b>Percent Volatile:</b>	79%
<b>VOC:</b>	726 g/L (clear), 720 g/L (white)		

**Section 10 - Chemical Stability & Reactivity Information****Chemical Stability**

This is a stable material. This product is not reactive.

**Chemical Stability: Conditions to Avoid**

Keep away from heat, ignition sources and incompatible materials.

**Incompatibility**

This product may react with strong oxidizing agents.

**Hazardous Decomposition**

Carbon monoxide, carbon dioxide, hydrogen chloride, and other partially oxidized hydrocarbons.

**Hazardous Polymerization**

Will not occur.

**Section 11 - Toxicological Information****Acute Toxicity****A: General Product Information**

Vapors from this product may cause irritation of the eyes, and upper respiratory tract including the nose, mouth, and throat.

**B: Component Analysis - LD50/LC50****Tetrahydrofuran (109-99-9)**

Inhalation LC50 Rat: 53.9 mg/L/4H; Inhalation LC50 Rat: 180 mg/L/1H; Oral LD50 Rat: 1650 mg/kg

**Methyl ethyl ketone (78-93-3)**

Inhalation LC50 Mouse: 32 g/m<sup>3</sup>/4H; Oral LD50 Rat: 2600 mg/kg; Dermal LD50 Rabbit: 6400 mg/kg

**Acetone (67-64-1)**

Inhalation LC50 Rat: 76 mg/L/4H; Oral LD50 Rat: 1800 mg/kg; Dermal LD50 Rabbit: 20000 mg/kg

**Titanium dioxide (colorant) (13463-67-7)**

Oral LD50 Rat: >10000 mg/kg

**Isopropyl alcohol (67-63-0)**

Inhalation LC50 Rat: 72.6 mg/L/4H; Oral LD50 Rat: 4396 mg/kg; Dermal LD50 Rat: 12800 mg/kg; Dermal LD50 Rabbit: 12800 mg/kg

**Vinyl acetate (108-05-4)**

Inhalation LC50 Rat: 11.4 mg/L/4H; Inhalation LC50 Rat: 3200 ppm/4H; Oral LD50 Rat: 2920 mg/kg; Dermal LD50 Rabbit: 2320 mg/kg

**Carcinogenicity**

**A: General Product Information**

No additional information available.

Tetrahydrofuran was associated with an increase in liver cancer in female mice and a slight increase in kidney cancer in male rats. However, in the same study, it had no effect on cancer incidence in male mice or in female rats. The relevance of this finding to humans is uncertain.

**B: Component Carcinogenicity**

**Tetrahydrofuran (109-99-9)**

ACGIH: A3 - Confirmed animal carcinogen with unknown relevance to humans

**Vinyl chloride-Vinyl acetate copolymer (9003-22-9)**

IARC: Group 3 - Not Classifiable (IARC Supplement 7 [1987], Monograph 19 [1979])

**Acetone (67-64-1)**

ACGIH: A4 - Not Classifiable as a Human Carcinogen

**Titanium dioxide (colorant) (13463-67-7)**

ACGIH: A4 - Not Classifiable as a Human Carcinogen

IARC: Group 2B - Possibly Carcinogenic to Humans (IARC Monograph 93 posted, Monograph 47 [1989])

**Isopropyl alcohol (67-63-0)**

ACGIH: A4 - Not Classifiable as a Human Carcinogen

IARC: Group 3 - Not Classifiable (IARC Monograph 71 [1999], Supplement 7 [1987], Monograph 15 [1977])

**Vinyl acetate (108-05-4)**

ACGIH: A3 - Confirmed animal carcinogen with unknown relevance to humans

IARC: Group 2B - Possibly Carcinogenic to Humans (IARC Monograph 63 [1995], Supplement 7 [1987])

**Chronic Toxicity**

Prolonged, excessive exposures to vapors of this product may produce liver and kidney injury. Methyl ethyl ketone has shown possible reproductive risks in one animal study; a second study was negative. Individuals exposed to high levels of Tetrahydrofuran have elevated circulating liver enzymes and have complained of nausea, tinnitus, and occipital headache.

**Section 12 - Ecological Information**

**Ecotoxicity**

**A: General Product Information**

No data available for this product.

**B: Component Analysis - Ecotoxicity - Aquatic Toxicity**

**Tetrahydrofuran (109-99-9)**

96 Hr LC50 Pimephales promelas: 2160 mg/L [flow-through]; 96 Hr LC50 Pimephales promelas: 2700-3600 mg/L [static]  
24 Hr EC50 Daphnia magna: >10000 mg/L

**Methyl ethyl ketone (78-93-3)**

96 Hr LC50 Pimephales promelas: 3220 mg/L [flow-through]; 96 Hr LC50 Lepomis macrochirus: 1690 mg/L  
5 min EC50 Photobacterium phosphoreum: 3426 mg/L; 30 min EC50 Photobacterium phosphoreum: 3403 mg/L  
48 Hr EC50 water flea: 520 mg/L; 48 Hr EC50 Daphnia magna: 5091 mg/L

**Acetone (67-64-1)**

96 Hr LC50 Oncorhynchus mykiss: 5540 mg/L [static]; 96 Hr LC50 Pimephales promelas: 6210 mg/L [flow-through]; 96 Hr LC50 Lepomis macrochirus: 8300 mg/L [static]  
15 min EC50 Photobacterium phosphoreum: 14500 mg/L  
48 Hr EC50 water flea: 0.0039 mg/L; 48 Hr EC50 water flea: 12700 mg/L [Static]; 48 Hr EC50 Daphnia magna: 12600 mg/L

**Isopropyl alcohol (67-63-0)**

96 Hr LC50 Pimephales promelas: 9640 mg/L [flow-through]; 96 Hr LC50 Pimephales promelas: 94900 mg/L [flow-through] (29 days old); 96 Hr LC50 Pimephales promelas: 61200 mg/L [flow-through] (31 days old)  
96 Hr EC50 Scenedesmus subspicatus: >1000 mg/L; 72 Hr EC50 Scenedesmus subspicatus: >1000 mg/L  
5 min EC50 Photobacterium phosphoreum: 35390 mg/L  
48 Hr EC50 Daphnia magna: 13299 mg/L

**Vinyl acetate (108-05-4)**

96 Hr LC50 Pimephales promelas: 31.0 mg/L; 96 Hr LC50 Lepomis macrochirus: 31.0 mg/L; 96 Hr LC50 Pimephales promelas: 14-15 mg/L [static]; 96 Hr LC50 Lepomis macrochirus: 18 mg/L [static]  
5 min EC50 Photobacterium phosphoreum: 2080 mg/L  
24 Hr EC50 water flea: 52.0 mg/L

**Section 13 - Disposal Considerations**

**US EPA Waste Number & Descriptions**

**A: General Product Information**

Comply with state and local regulations for disposal. If you are unsure of the regulations, contact your local Public Health Department, or the local office of the EPA.

**B: Component Waste Numbers**

**Tetrahydrofuran (109-99-9)**

RCRA: waste number U213 (Ignitable waste)

**Methyl ethyl ketone (78-93-3)**

RCRA: waste number U159 (Ignitable waste, Toxic waste)  
200.0 mg/L regulatory level

**Acetone (67-64-1)**

RCRA: waste number U002 (Ignitable waste)

**Disposal Instructions**

Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations.

**Section 14 - Transportation Information**

**International Transportation Regulations**

**DOT:** Consumer Commodity, ORM-D

Packaging must not exceed 5 L (1.3 gal) inner; 30 kg (66 lb) outer

**IATA:** UN 1133, Adhesives, 3, PGII.

CARGO AIRCRAFT ONLY

FLAMMABLE LIQUID label required

1 qt plastic cans, 6/box only:

Inner packagings must not exceed 10 L (2.6 gal) each (depending on the type of inner packaging used) and the outer package may not exceed 60 L (15.8 gal).

1 gal steel can, 1/box only:

Inner packagings must not exceed 5 L (1.3 gal) each (depending on the type of inner packaging used) and the outer package may not exceed 5 L (1.3 gal)

**IMDG:** UN 1133, Adhesives, 3, PGII

Inner packagings must not exceed 5 L (1.3 gal) and outer packagings must not exceed 30 kg (66 lb)

<b>Section 15 - Regulatory Information</b>
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**US Federal Regulations****A: General Product Information**

SARA 311 Status. The following SARA 311 designations apply to this product: Immediate (acute) health hazard. Delayed (chronic) health hazard. Fire hazard.

**B: Component Analysis**

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

**Tetrahydrofuran (109-99-9)**

CERCLA: 1000 lb final RQ; 454 kg final RQ

**Methyl ethyl ketone (78-93-3)**

CERCLA: 5000 lb final RQ; 2270 kg final RQ

**Acetone (67-64-1)**

CERCLA: 5000 lb final RQ; 2270 kg final RQ

**Isopropyl alcohol (67-63-0)**

SARA 313: 1.0 % de minimis concentration (only if manufactured by the strong acid process, no supplier notification)

**Vinyl acetate (108-05-4)**

SARA 302: 1000 lb TPQ

SARA 313: 0.1 % de minimis concentration

CERCLA: 5000 lb final RQ; 2270 kg final RQ

**State Regulations****A: General Product Information**

Other state regulations may apply. Check individual state requirements.

**B: Component Analysis - State**

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS #	CA	FL	MA	MN	NJ	PA
Tetrahydrofuran	109-99-9	Yes	No	Yes	Yes	Yes	Yes
Methyl ethyl ketone	78-93-3	Yes	No	Yes	Yes	Yes	Yes
Acetone	67-64-1	Yes	No	Yes	Yes	Yes	Yes
Titanium dioxide (colorant)	13463-67-7	No	No	Yes	Yes	Yes	Yes
Isopropyl alcohol	67-63-0	Yes	No	Yes	Yes	Yes	Yes
Vinyl acetate	108-05-4	Yes	No	Yes	Yes	Yes	Yes

**Other Regulatory Information****A: General Product Information**

No information available for the product.

**B: TSCA Status**

This product and its components are listed on the TSCA 8(b) inventory.

The following components listed in this product are listed on the TSCA Export Notification 12(b) list.

**TSCA 12(b)**

Component	CAS	TSCA 12 (b)
Tetrahydrofuran	109-99-9	Yes

**C: Component Analysis - Inventory**

Component	CAS #	TSCA	DSL	EINECS
Tetrahydrofuran	109-99-9	Yes	Yes	Yes
Methyl ethyl ketone	78-93-3	Yes	Yes	Yes
Vinyl chloride-Vinyl acetate copolymer	9003-22-9	Yes	Yes	No
Acetone	67-64-1	Yes	Yes	Yes
Titanium dioxide (colorant)	13463-67-7	Yes	Yes	Yes
Isopropyl alcohol	67-63-0	Yes	Yes	Yes
Vinyl acetate	108-05-4	Yes	Yes	Yes

**Component Analysis - WHMIS IDL**

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Tetrahydrofuran	109-99-9	1 %
Methyl ethyl ketone	78-93-3	1 %
Acetone	67-64-1	1 %
Isopropyl alcohol	67-63-0	1 %
Vinyl acetate	108-05-4	1 %

**Section 16 - Other Information****Other Information**

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As of the date of preparation of this document, the foregoing information is believed to be accurate and is provided in good faith to comply with applicable federal and state law(s). However, no warranty or representation with respect to such information is intended or given.

Date	MSDS #	Reason
08/01/00	2006-1.0000	New MSDS authoring system.
10/27/00	2006-1.0100	LOLI update, minor. Also transportation update (Sect. 14).
11/17/00	2006-1.0101	Delete "300" from trade names (Section 1.)
06/18/02	2006-1.0102	Sect. 15: Updated TSCA 12B, Tetrahydrofuran no longer listed. Other minor edits.
06/30/03	2006-1.0103	Sect. 1, 2, 6, 9. Minor adjustments to composition. New JM division name (Performance Mtrls.). Changed Ceel-Tite to Ceel-Co Perma-Weld.
01/07/04	2006-1.0104	Sect. 1 added Ceel-Tite to product names and revised material name.
02/10/05	2006-1.0105	Minor edits throughout
12/30/05	2006-1.0106	Section 14 Transportation addition of IATA and IMDG info.
01/15/07	2006-1.0107	Minor edits throughout.

This is the end of MSDS # 2006