ZESTON® Perma-Weld® Adhesive White

Version 1.0 | Revision Date 04/08/2020 | Print Date 04/09/2020

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Trade name	:	ZESTON® Perma-Weld® Adhesive White

Manufacturer or supplier's details

Company	:	Johns Manville
Address	:	P.O. Box 5108 Denver, CO USA 80127
Telephone	:	+1-303-978-2000
Emergency telephone number	:	+1-800-424-9300 (CHEMTREC)
Company	:	Johns Manville Canada Inc.
Address	:	5301 42 Avenue Innisfail, AB Canada T4G 1A2
Telephone	:	+1-303-978-2000
Emergency telephone number	:	+1-800-424-9300 (CHEMTREC)

Recommended use of the chemical and restrictions on use

Restrictions on use	:	For professional users only.
Prepared by	:	productsafety@jm.com

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200 (OSHA HCS 2012) and the Hazardous Products Regulations (WHMIS 2015)

Flammable liquids	:	Category 2
Acute toxicity (Oral)	:	Category 4
Skin irritation	:	Category 2
Eye irritation	:	Category 2A
Carcinogenicity	:	Category 2
Specific target organ toxicity - single exposure	:	Category 3 (Respiratory system, Central nervous system)

GHS label elements

Hazard pictograms :

Signal word	:	Danger
Hazard statements	:	H225 Highly flammable liquid and vapour. H302 Harmful if swallowed. H315 Causes skin irritation.

H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H336 May cause drowsiness or dizziness.
H351 Suspected of causing cancer.

Precautionary statements :

Prevention:

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.

Disposal:

P501 Dispose of contents/container to an approved facility in accordance with local, regional, national and international regulations.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature

Adhesives

Hazardous components

Chemical name	CAS-No.	Concentration (%)
tetrahydrofuran	109-99-9	>= 45 - <= 70
2-butanone	78-93-3	>= 10 - <= 30
titanium dioxide	13463-67-7	>= 1 - <= 5

Actual concentration or concentration range is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

General advice	:	Handle in accordance with good industrial hygiene and safety practice. Show this safety data sheet to the doctor in attendance. Move out of dangerous area. Do not leave the victim unattended.
If inhaled	:	Remove person to fresh air. If signs/symptoms continue, get medical attention. If breathing is irregular or stopped, administer artificial respiration.
In case of skin contact	:	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician if irritation develops or persists.
In case of eye contact	:	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If easy to do, remove contact lens, if worn. Protect unharmed eye. If eye irritation persists, consult a specialist.
If swallowed	:	DO NOT induce vomiting unless directed to do so by a physician or poison control center. Gently wipe or rinse the inside of the mouth with water. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician or Poison Control Centre immediately.
Most important symptoms and effects, both acute and delayed	:	Harmful if swallowed. Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation. May cause drowsiness or dizziness. Suspected of causing cancer if inhaled.
Protection of first-aiders	:	If potential for exposure exists refer to Section 8 for specific personal protective equipment.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Carbon dioxide (CO2) Dry chemical Foam Water spray
Unsuitable extinguishing media	:	High volume water jet
Specific hazards during firefighting	:	Cool closed containers exposed to fire with water spray. Do not use a solid water stream as it may scatter and spread fire. Vapours may form flammable mixture with air Vapours are heavier than air and may spread along floors. May release toxic, irritating and/or corrosive gases.
Hazardous combustion products	:	carbon oxides Hydrogen chloride gas chlorine compounds titanium/titanium oxides
Specific extinguishing methods	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Further information	:	Ground and bond container and receiving equipment. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Take action to prevent static discharges. Use explosion-proof electrical/ ventilating/ lighting equipment. Use non-sparking tools. In the event of fire, cool tanks with water spray. Prevent fire extinguishing water from contaminating surface water or the ground water system.
Special protective equipment for firefighters	:	In the event of fire, wear self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Pay attention to flashback. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. Refer to protective measures listed in sections 7 and 8.
Environmental precautions	:	Should not be released into the environment.
Methods and materials for	:	Contain spillage, and then collect with non-combustible

containment and cleaning up	absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion	:	Use explosion-proof equipment. Electrical equipment should be protected to the appropriate standard. Take measures to prevent the build up of electrostatic charge. Use only in area provided with appropriate exhaust ventilation. Keep away from open flames, hot surfaces and sources of ignition. Vapours are heavier than air and may spread along floors. Prevent the creation of flammable or explosive concentrations of vapour in air and avoid vapour concentration higher than the occupational exposure limits.
Advice on safe handling	:	For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area.
Conditions for safe storage	:	Keep containers tightly closed in a dry, cool and well-ventilated place. To maintain product quality, do not store in heat or direct sunlight. Use explosion-proof equipment. Keep away from sources of ignition - No smoking.
Materials to avoid	:	Keep away from oxidizing agents and strongly acid or alkaline materials.
Recommended storage temperature	:	10 - 25 °C

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
tetrahydrofuran	109-99-9	TWA	50 ppm	ACGIH
		STEL	100 ppm	ACGIH
		TWA	200 ppm 590 mg/m³	NIOSH REL
		ST	250 ppm 735 mg/m³	NIOSH REL
		TWA	200 ppm 590 mg/m³	OSHA
2-butanone	78-93-3	TWA	200 ppm	ACGIH
		STEL	300 ppm	ACGIH

		TWA	200 ppm 590 mg/m³	NIOSH REL
		ST	300 ppm 885 mg/m³	NIOSH REL
		TWA	200 ppm 590 mg/m³	OSHA
titanium dioxide	13463-67-7	TWA (total dust)	15 mg/m³	OSHA
		TWA	10 mg/m³ (Titanium dioxide)	ACGIH

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
tetrahydrofuran	109-99-9	Tetrahydrofuran	Urine	End of shift (As soon as possible after exposure ceases)	2 mg/l	ACGIH BEI
2-butanone	78-93-3	methyl ethyl ketone	Urine	End of shift (As soon as possible after exposure ceases)	2 mg/l	ACGIH BEI

Engineering measures : Use only in an area equipped with explosion proof exhaust ventilation.
Provide exhaust ventilation close to floor level.
Maintain air concentrations below occupational exposure standards.

Personal protective equipment

Respiratory protection : General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

Hand protection
Material : Solvent-resistant gloves

Remarks : Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local

conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.

Eye protection	:	Wear safety glasses with side shields or goggles. Wear face-shield and protective suit for abnormal processing problems.
Skin and body protection	:	Wear protective clothing, such as long-sleeved shirts and pants. Remove and wash contaminated clothing before re-use.
Hygiene measures	:	Handle in accordance with good industrial hygiene and safety practice. Written instructions for handling must be available at the work place. Contaminated work clothing should not be allowed out of the workplace.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Colour	:	white
Odour	:	strong, irritating, hydrocarbon-like
Odour Threshold	:	No data available
pH	:	Not applicable
Melting point/freezing point	:	not determined
Boiling point/boiling range	:	> 60 °C
Flash point	:	> -13 °C
Evaporation rate	:	No data available
Flammability (solid, gas)	:	No data available
Upper explosion limit	:	16 %(V)
Lower explosion limit	:	3 %(V)
Vapour pressure	:	213.3 hPa (25 °C)
Relative vapour density	:	> 1(Air = 1.0) Vapors are heavier than air and may travel along the floor and in the bottom of containers.
Relative density	:	No data available
Density	:	0.8 - 1.1 g/cm³ (25 °C)

Solubility(ies)

Water solubility	:	soluble
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Auto-ignition temperature	:	No data available
Thermal decomposition	:	No data available
Viscosity		
Viscosity, dynamic	:	500 - 1,400 mPa.s (25 °C)
Viscosity, kinematic	:	No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Will ignite Hazardous decomposition products formed under fire conditions.
Conditions to avoid	:	Heat, flames and sparks. Electrostatic discharge
Incompatible materials	:	Oxidizing agents Strong acids and strong bases Strong reducing agents
Hazardous decomposition products	:	In case of fire hazardous decomposition products may be produced such as: carbon oxides chlorine compounds Hydrogen chloride gas titanium/titanium oxides

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Harmful if swallowed.

Product:

Acute oral toxicity	:	Acute toxicity estimate : > 300 - 2,000 mg/kg Method: Calculation method
Acute inhalation toxicity	:	Acute toxicity estimate : > 10 mg/l Exposure time: 4 h Test atmosphere: dust/mist

Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate : > 2,000 mg/kg
Method: Calculation method

Acute toxicity

Components:

tetrahydrofuran:

Acute oral toxicity : LD50 (Rat, male and female): 1,650 mg/kg

Acute inhalation toxicity : LC50 (Rat, male and female): > 14.7 mg/l
Exposure time: 6 h
Test atmosphere: vapour
Assessment: The substance or mixture has no acute inhalation toxicity
Remarks: No mortality was observed.

Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg
Method: OECD Test Guideline 402
GLP: yes

Acute toxicity

2-butanone:

Acute oral toxicity : LD50 (Rat, male and female): 2,193 mg/kg
Method: OECD Test Guideline 423

Acute inhalation toxicity : Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit, male): > 8,054 mg/kg
Method: OECD Test Guideline 402
GLP: no

Acute toxicity

titanium dioxide:

Acute oral toxicity : LD50 (Rat, male and female): > 2,000 mg/kg

Acute inhalation toxicity : LC50 (Rat, male and female): > 5.09 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403

Acute dermal toxicity : Method: Expert judgement
Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation

Causes skin irritation.

Product:

Result: irritating

Serious eye damage/eye irritation

Causes serious eye irritation.

Product:

Result: Irritating to eyes.
Remarks: Vapours may be irritating to eyes, nose, throat, and lungs.

Serious eye damage/eye irritation

Components:

tetrahydrofuran:
Species: Rabbit
Result: Irreversible effects on the eye
Method: Draize Test
GLP: no

Serious eye damage/eye irritation

2-butanone:
Species: Rabbit
Result: irritating
Method: OECD Test Guideline 405

Respiratory sensitisation: Not classified based on available information.

Respiratory or skin sensitisation

Components:

tetrahydrofuran:

IARC	Group 2B: Possibly carcinogenic to humans	
	tetrahydrofuran	109-99-9
	titanium dioxide	13463-67-7
ACGIH	Confirmed animal carcinogen with unknown relevance to humans	
	tetrahydrofuran	109-99-9
OSHA	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA (29 CFR 1910 Subpart Z, Toxic and Hazardous Substances).	
NTP	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.	

STOT - single exposure

Components:

tetrahydrofuran:
Exposure routes: Inhalation
Target Organs: Respiratory system
Assessment: May cause respiratory irritation.

STOT - single exposure

2-butanone:
Exposure routes: Inhalation
Target Organs: Central nervous system
Assessment: May cause drowsiness or dizziness.

Aspiration toxicity

Not classified based on available information.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

tetrahydrofuran:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 2,160 mg/l End point: mortality Exposure time: 96 h Test Type: flow-through test Method: OECD Test Guideline 203 GLP: no
Toxicity to daphnia and other aquatic invertebrates	:	LC50 (Daphnia magna (Water flea)): 3,485 mg/l End point: mortality Exposure time: 48 h Test Type: static test Analytical monitoring: no Method: OECD Test Guideline 202 GLP: No information available.
Toxicity to algae	:	ECx (Scenedesmus quadricauda (Green algae)): 3,700 mg/l Exposure time: 8 d Test Type: static test Analytical monitoring: no
Toxicity to fish (Chronic toxicity)	:	NOEC (Pimephales promelas (fathead minnow)): 216 mg/l Exposure time: 33 d Test Type: flow-through test Analytical monitoring: yes GLP: No information available.

2-butanone:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 2,993 mg/l End point: mortality Exposure time: 96 h Test Type: static test Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 308 mg/l End point: Immobilization Exposure time: 48 h Test Type: static test Method: OECD Test Guideline 202

Toxicity to algae	:	EC50 (Pseudokirchneriella subcapitata (green algae)): 2,029 mg/l Exposure time: 96 h Test Type: static test Method: OECD Test Guideline 201

Persistence and degradability

No data available

Bioaccumulative potential

Components:

tetrahydrofuran:

Partition coefficient: n-octanol/water	:	log Pow: 0.45 (25 °C) pH: 7

2-butanone:

Partition coefficient: n-octanol/water	:	log Pow: 0.3 (40 °C) Method: OECD Test Guideline 117

Mobility in soil

No data available

Other adverse effects

Product:

Ozone-Depletion Potential	:	Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	Dispose of contents/container to an approved facility in accordance with local, regional, national and international regulations. The hazard and precautionary statements displayed on the label also apply to any residues left in the container.
Contaminated packaging	:	Packaging that is not properly emptied must be disposed of as the unused product. Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum.

SECTION 14. TRANSPORT INFORMATION

International transport regulations

Land transport
USDOT (Special Provision 149): UN1133, Adhesives, 3, II
TDG: UN1133, Adhesives, 3, II

LIMITED QUANTITY if shipped in inner packagings not over 5.0 L (1.3 gallons) net capacity each, packed in a strong outer packaging.

Sea transport
IMDG: UN1133, Adhesives, 3, II

Air transport
IATA/ICAO: UN1133, Adhesives, 3, II

SECTION 15. REGULATORY INFORMATION

TSCA list

TSCA - 5(a) Significant New Use Rule List of Chemicals	:	No substances are subject to a Significant New Use Rule.
U.S. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpart D)	:	No substances are subject to TSCA 12(b) export notification requirements.

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
tetrahydrofuran	109-99-9	1000	1428

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards	:	Flammable (gases, aerosols, liquids, or solids) Acute toxicity (any route of exposure) Skin corrosion or irritation Serious eye damage or eye irritation Carcinogenicity Specific target organ toxicity (single or repeated exposure)
SARA 302	:	This material does not contain any components with a section 302 EHS TPQ.
SARA 313	:	This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Air Act

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489):

2-butanone	78-93-3	10 - 30 %

The components of this product are reported in the following inventories:

TSCA	:	On the inventory, or in compliance with the inventory
DSL	:	On the inventory, or in compliance with the inventory

SECTION 16. OTHER INFORMATION

Further information

Revision Date : 04/08/2020

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.