MATERIAL SAFETY DATA SHEET

12-7-16

SECTION 1: IDENTIFICATION

Product identifier : **ACRA-SEAL PLASTIC SPRAY** Solder Seal GUNK Plastic Spray and Ignition Sealer

Product Use : Sealant.

Chemical Family : Mixture.

Manufacturer part no. : M406C

Supplier's name and address:

Radiator Specialty Co., of Canada
1711 Aimco Blvd.
Mississauga, ON, Canada
L4W 1H7

Manufacturer's name and address:
Refer to Supplier

Information Telephone # : (905) 625-9117 (Monday - Friday, 8 AM - 4 PM)

24 Hr. Emergency Tel # : 613-996-6666 (CANUTEC)

SECTION 2 - HAZARDS IDENTIFICATION

Classification : WHMIS information: This product is a WHMIS Controlled Product. It meets one or more of the criteria for a controlled product provided in Part IV of the Canadian Controlled Products Regulations (CPR). WHMIS classification:
Class A (Pressurized containers);
Class B5 (Flammable Aerosols);
Class D2A (Materials Causing Other Toxic Effects, Very Toxic Material);
Class D2B (Materials Causing Other Toxic Effects, Toxic Material).
Labelling: Phrases recommended to appear on a supplier label, can be found in Section 15.

WHMIS symbols required on a supplier label:

Emergency Overview : Clear liquid, contained in a pressurized aerosol can. Ketone odour.
WARNING! Flammable aerosol. Contents under pressure. Container may explode if heated. Harmful if inhaled. May cause eye, skin and respiratory tract irritation. May cause central nervous system effects. May be an aspiration hazard. Contains material which may be a teratogen. Liver and kidney injuries may occur.

POTENTIAL HEALTH EFFECTS:

Signs and symptoms of short-term (acute) exposure

Inhalation : Inhalation may cause respiratory irritation and central nervous system depression. Symptoms may include pain, headache, nausea, vomiting, dizziness, drowsiness and other central nervous system effects. In extremely high concentrations, product may act as an asphyxiant and cause increased breathing and pulse rates, fatigue and unconsciousness.

Skin : May cause mild to moderate skin irritation. If product is sprayed directly on skin, symptoms of frostbite may be experienced including numbness, prickling and itching. May be absorbed through the skin, producing symptoms similar to ingestion or inhalation.

Eyes : May cause moderate to severe irritation. If product is sprayed directly into the eyes, could cause freezing of the eye.

Ingestion : Not an expected route of entry under normal conditions of use. Ingestion of large amounts may cause nausea, vomiting, diarrhea, as well as depression of the central nervous system. Aspiration into the lungs during swallowing or subsequent vomiting may cause chemical pneumonitis, which can be fatal.

Effects of long-term (chronic) exposure
: Prolonged skin contact may cause dermatitis (rash), characterized by red, dry, itching skin. Prolonged overexposure may cause liver and kidney effects.

Carcinogenic status : See TOXICOLOGICAL INFORMATION, Section 11.

Additional health hazards : May cause birth defects. See TOXICOLOGICAL INFORMATION, Section 11.

Potential environmental effects
: See ECOLOGICAL INFORMATION, Section 12.

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	CAS #	Wt.%
Acetone	67-64-1	10.00 - 30.00
Toluene	108-88-3	10.00 - 30.00
Propane	74-98-6	10.00 - 30.00
Propylene glycol monomethyl ether acetate	108-65-6	7.00 - 13.00
Isobutane	75-28-5	5.00 - 10.00
Propylene glycol methyl ether	107-98-2	1.00 - 5.00
Diacetone alcohol	123-42-2	1.00 - 5.00
n-Butyl acetate	123-86-4	1.00 - 5.00

SECTION 4 - FIRST AID MEASURES

Inhalation : Immediately remove person to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen by qualified medical personnel only. Get medical attention if symptoms persist.

Skin contact : Remove/Take off immediately all contaminated clothing. Wash exposed area thoroughly with soap and water for at least 15 minutes. If irritation persists, seek prompt medical attention.

Eye contact : Immediately flush eyes with plenty of water for at least 15 minutes. Seek immediate medical attention/advice.

Ingestion : Seek immediate medical attention/advice. Do not induce vomiting. Never give anything by mouth to an unconscious person. If vomiting occurs spontaneously, keep victim's head lowered (forward) to reduce the risk of aspiration.

Notes For Physician : Treat symptomatically. This product is a CNS depressant.

SECTION 5 - FIRE FIGHTING MEASURES

Fire hazards/conditions of flammability

: Flammable aerosol. Will ignite when exposed to heat, flame and other sources of ignition. Vapours are heavier than air and collect in confined and low-lying areas. Vapour can travel considerable distance and flashback to a source of ignition. Empty containers retain residue (liquid and/or vapour) and can be dangerous. Closed containers are contained under pressure and may explode if exposed to excess heat for a prolonged period of time.

Oxidizing properties : None known.

Explosion data: Sensitivity to mechanical impact / static discharge

: Not expected to be sensitive to mechanical impact. May be sensitive to static discharge.

Suitable extinguishing media : Dry chemical, foam, carbon dioxide and water fog.

Special fire-fighting procedures/equipment

: Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode. Move containers from fire area if safe to do so. Shield personnel to protect from venting or rupturing containers. Water spray may be useful in cooling equipment exposed to heat and flame.

Hazardous combustion products

: Carbon oxides; Hydrocarbons; Aldehydes; acetic acid; irritating fumes and smoke.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions : All persons dealing with the clean-up should wear the appropriate personal protective equipment. Keep all other personnel upwind and away from the spill/release. Restrict access to area until completion of clean-up. Refer to protective measures listed in sections 7 and 8.

Environmental precautions : Ensure spilled product does not enter drains, sewers, waterways, or confined spaces.

Spill response/cleanup : Ventilate area of release. Remove all sources of ignition. Use only non-sparking tools and equipment in the clean-up process. Contain and absorb spilled liquid with non-combustible, inert absorbent material (e.g. sand), then place absorbent material into a container for later disposal (see Section 13). Notify the appropriate authorities as required.

Prohibited materials : Do not use combustible absorbents, such as sawdust.

SECTION 7 - HANDLING AND STORAGE

Safe Handling procedures : Use in a well-ventilated area. Wear suitable protective equipment during handling. Do not breathe vapours or spray mist. Avoid contact with skin, eyes and clothing. Keep away from heat, sparks and open flames. Avoid contact with incompatible materials. Do not puncture or incinerate. Wash thoroughly after handling. Always replace cap after use.

Storage requirements : Store in a cool, dry, well-ventilated area. Keep away from direct sunlight. Inspect periodically for damage or leaks. No smoking in the area.

Incompatible materials : Strong oxidizing agents; Reducing agents; Acids; Bases; Alkali metals; Halogenated compounds.

Special packaging materials : Always keep in containers made of the same materials as the supply container.

SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits

Ingredients	ACGIH TLV		OSHA PEL	
	TWA	STEL	PEL	STEL
Acetone	250 ppm	500 ppm	1000 ppm (2400 mg/m³)	N/Av
Toluene	20 ppm	N/Av	200 ppm	300 ppm (Ceiling)
Propane	N/Av	N/Av	1000 ppm (1800 mg/m³)	N/Av
Propylene glycol monomethyl ether acetate	50 ppm (AIHA WEEL)	N/Av	N/Av	N/Av
Isobutane	1000 ppm (as 'Butane, all isomers')	N/Av	N/Av	N/Av
Propylene glycol methyl ether	50 ppm	100 ppm	N/Av	N/Av
Diacetone alcohol	50 ppm	N/Av	50 ppm (240 mg/m³)	N/Av
n-Butyl acetate	150 ppm	200 ppm	150 ppm (710 mg/m³)	N/Av

Ventilation and engineering measures : Use general or local exhaust ventilation to maintain air concentrations below recommended exposure limits.

Respiratory protection : If the TLV is exceeded, a NIOSH/MSHA-approved respirator is advised. Advice should be sought from respiratory protection specialists.

Skin protection : Impervious gloves must be worn when using this product. Advice should be sought from glove suppliers. Depending on conditions of use, an impervious apron should be worn.

Eye / face protection : Chemical splash goggles are recommended. A full face shield may also be necessary.

Other protective equipment : An eyewash station and safety shower should be made available in the immediate working area.

General hygiene considerations : Avoid breathing vapors or mists. Avoid contact with skin, eyes and clothing. Handle in accordance with good industrial hygiene and safety practice. Wash contaminated clothing before reuse. Wash hands thoroughly after using this product, and before eating, drinking or smoking.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical state : Liquid aerosol. **Appearance** : Clear liquid.

Odour : Ketone odour. **Odour threshold** : N/Av

pH : N/Av

Boiling point : 57-168°C (135-334°F) (concentrate)
Melting/Freezing point : N/Av
Vapour pressure (mmHg @ 20° C / 68° F) : 55 - 65 psig
Vapour density (Air = 1) : > 1
Volatile organic Compounds (VOC's) : N/Av
Flash point : > -18°C (> -4°F)
Flash point Method : TCC
Lower flammable limit (% by vol.) : 1.0
Flame Projection Length : > 45 cm
Absolute pressure of container : N/Av
General Information : No additional information.

Specific gravity : 0.87-0.91 (liquid) ; 0.73-0.77 (aerosol)
Coefficient of water/oil distribution : N/Av
Solubility in water : N/Av
Evaporation rate (n-Butyl acetate = 1) : > 1.0
Volatiles (% by weight) : 90 - 91%
Auto-ignition temperature : N/Av
Upper flammable limit (% by vol.) : 15.1
Flashback observed : N/Av
Viscosity : N/Av

Section 10: STABILITY AND REACTIVITY

Stability and reactivity : Stable under the recommended storage and handling conditions prescribed. May form explosive peroxides during prolonged exposure to air and heat. Exposure to sunlight accelerates decomposition.
Hazardous polymerization : Hazardous polymerization does not occur.
Conditions to avoid : Avoid heat and open flame. Keep away from direct sunlight. Do not use in areas without adequate ventilation.
Materials To Avoid And Incompatibility : Acids; Bases; Oxidizing agents; Alkali metals; Reducing agents; Halogenated compounds.
Hazardous decomposition products : None known, refer to hazardous combustion products in Section 5.

SECTION 11 - TOXICOLOGICAL INFORMATION

Target organs : Eyes, skin, respiratory system, digestive system, central nervous system.
Routes of exposure : *Inhalation:* YES *Skin Absorption:* YES *Skin & Eyes:* YES *Ingestion:* YES
Irritancy : May cause mild to moderate skin irritation. Moderate to severe eye irritant.
Toxicological data : There is no available data for the product itself, only for the ingredients. See below for individual ingredient acute toxicity data.

Ingredients	LC_{50} (4hr) inh, rat	LD_{50} (Oral, rat)	LD_{50} (Rabbit, dermal)
Acetone	30 000 ppm (71 mg/L) (vapour)	5800 mg/kg	> 15 800 mg/kg
Toluene	7585 ppm (28.1 mg/L) (vapour)	5580 mg/kg	12 125 mg/kg
Propane	N/Av	N/Ap (gas)	N/Ap (gas)
Propylene glycol monomethyl ether acetate	> 5320 ppm (28.7 mg/L) (vapour)	8532 mg/kg	> 19 200 mg/kg
Isobutane	368 000 ppm (mouse)	N/Ap (gas)	N/Ap (gas)
Propylene glycol methyl ether	15 000 ppm (55.3 mg/L) (vapour)	4016 mg/kg	> 2000 mg/kg (No mortality)
Diacetone alcohol	> 1860 ppm (8.84 mg/L) (No mortality)	2738 - 3290 mg/kg	12 648 - 14 415 mg/kg
n-Butyl acetate	> 6867 ppm (vapour) 1.802 mg/L (aerosol)	10 700 mg/kg	> 5000 mg/kg

Carcinogenic status : No components are listed as carcinogens by ACGIH, IARC, OSHA or NTP.
Reproductive effects : Not expected to have other reproductive effects.

Teratogenicity : Contains Toluene. Toluene may cause fetotoxic effects at doses which are not maternally toxic, based on animal data.
This product does contain Propylene glycol monomethyl ether acetate (PGMMEA). Commercial PGMMEA may contain small amounts of a beta-isomer. beta-PGMMEA may cause teratogenic effects, based on animal data. The potential for these developmental effects to occur for commercial PGMMEA is, however, considered to be low. The level of beta-PGMMEA in this product is unknown.

Mutagenicity : Not expected to be mutagenic in humans.

Epidemiology : None known or reported by the manufacturer.

Sensitization to material : Not expected to be a skin or respiratory sensitizer.

Synergistic materials : None known or reported by the manufacturer.

other important hazards : CNS depression may result from extreme exposures.

Conditions aggravated by overexposure
: None known or reported by the manufacturer.

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity : No data is available on the product itself. The product should not be allowed to enter drains or water courses, or be deposited where it can affect ground or surface waters.

See the following tables for individual ingredient ecotoxicity data.

Ecotoxicity data:

Ingredients	CAS No	Toxicity to Fish		
		LC50 / 96h	NOEC / 21 day	M Factor
Acetone	67-64-1	6210 mg/L (Fathead minnow)	N/Av	None.
Toluene	108-88-3	5.4 mg/L (pink salmon)	1.4 - 4.0 mg/L	None.
Propane	74-98-6	N/Ap	N/Ap	N/Ap
Propylene glycol monomethyl ether acetate	108-65-6	161 mg/L (Fathead minnow)	N/Av	None.
Isobutane	75-28-5	N/Ap	N/Ap	N/Ap
Propylene glycol methyl ether	107-98-2	20 800 mg/L (Fathead minnow)	> 1000 mg/L (estimated)	None.
Diacetone alcohol	123-42-2	> 100 mg/L (Japanese ricefish)	N/Av	None.
n-Butyl acetate	123-86-4	18 mg/L (Fathead minnow)	N/Av	None.

Ingredients	CAS No	Toxicity to Daphnia		
		EC50 / 48h	NOEC / 21 day	M Factor
Acetone	67-64-1	15 800 mg/L (Daphnia magna)	1660 mg/L	None.
Toluene	108-88-3	3.78 mg/L Ceriodaphnia (water flea)	0.53 - 1 mg/L	None.
Propane	74-98-6	N/Ap	N/Ap	N/Ap
Propylene glycol monomethyl ether acetate	108-65-6	408 mg/L (Daphnia magna)	≥ 100 mg/L	None.
Isobutane	75-28-5	N/Ap	N/Ap	N/Ap
Propylene glycol methyl ether	107-98-2	23 300 mg/L (Daphnia magna)	210 mg/L (estimated)	None.
Diacetone alcohol	123-42-2	> 1000 mg/L (Daphnia magna)	> 100 mg/L	None.
n-Butyl acetate	123-86-4	44 mg/L (Daphnia magna)	23 mg/L (Read-across)	None.

Ingredients	CAS No	Toxicity to Algae		
		EC50 / 96h or 72h	NOEC / 96h or 72h	M Factor
Acetone	67-64-1	7000 mg/L/96hr (Green algae)	N/Av	None.
Toluene	108-88-3	N/Av	10 mg/L/72hr (Green algae)	None.
Propane	74-98-6	N/Ap	N/Ap	N/Ap
Propylene glycol monomethyl ether acetate	108-65-6	> 1000 mg/L/72hr (Green algae)	≥ 1000 mg/L/72hr	None.
Isobutane	75-28-5	N/Ap	N/Ap	N/Ap
Propylene glycol methyl ether	107-98-2	> 1000 mg/L/96hr (Green algae)	160 mg/L/96hr (estimated)	None.
Diacetone alcohol	123-42-2	> 1000 mg/L/72hr (Green algae)	> 1000 mg/L/72hr	None.
n-Butyl acetate	123-86-4	675 mg/L/72hr (Green algae)	200 mg/L/72hr	None.

Mobility : No data is available on the product itself.

Persistence : No data is available on the product itself.
The following ingredients are considered to be readily biodegradable: Acetone; Toluene; Propylene glycol monomethyl ether acetate; Propylene glycol methyl ether; Diacetone alcohol; n-Butyl acetate.

Bioaccumulation potential : No data is available on the product itself. See the following data for ingredient information.

Components	Partition coefficient n-octanol/water (log Kow)	Bioconcentration factor (BCF)
Acetone (CAS 67-64-1)	0.24	0.65 (Fish)
Toluene (CAS 108-88-3)	2.65	90
Propylene glycol monomethyl ether acetate (CAS 108-65-6)	0.36	N/Av
Isobutane (CAS 75-28-5)	2.76 (calculated)	27 (estimated)
Propylene glycol methyl ether (CAS 107-98-2)	- 0.49 (estimated)	3.2 (calculated)
Diacetone alcohol (CAS 123-42-2)	- 0.098	0.5
n-Butyl acetate (CAS 123-86-4)	2.3	15.3 (estimated)

Other Adverse Environmental effects

: No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

SECTION 13 - DISPOSAL CONSIDERATIONS

Handling for Disposal : Handle waste according to recommendations in Section 7. Do not puncture or incinerate containers.

Methods of Disposal : Dispose of in accordance with federal, provincial and local hazardous waste laws.

SECTION 14: TRANPORT INFORMATION

Regulatory Information	UN Number	Shipping Name	Class	Packing Group	Label
TDG	UN1950	AEROSOLS	2.1	None	
TDG Additional information	May be shipped as LIMITED QUANTITY when transported in containers no larger than 1.0 Litre, in packages not exceeding 30 kg gross mass. Under the TDGR, refer to Section 1.17 for additional exemption information, if shipping under this exemption.				

SECTION 15 - REGULATORY INFORMATION

Labelling:

Warning! Flammable aerosol. Contents under pressure. Container may explode if heated. Harmful if inhaled. May cause respiratory irritation. May cause skin irritation. May cause eye irritation. May cause headache, nausea, dizziness and other symptoms of central nervous system depression. May be an aspiration hazard. Can enter the lungs and cause damage. Contains material which may be a teratogen. Liver and kidney injuries may occur.

Precautions: Use in a well-ventilated area. Wear suitable protective equipment during handling. Avoid breathing vapors or mists. Avoid contact with skin, eyes and clothing. Keep away from heat, sparks and open flames. Do not puncture, incinerate or expose to heat even when empty. No sparking tools should be used. Avoid contact with incompatible materials. Wash thoroughly after handling. Store in a cool, dry, well-ventilated area away from sources of heat, ignition and sunlight.

FIRST AID: If inhaled, move to fresh air. If breathing is difficult, give oxygen by qualified medical personnel only. If breathing stops, provide artificial respiration. Get medical attention if symptoms persist. For skin contact, immediately remove contaminated clothing then wash thoroughly with soap and water for at least 15 minutes. If irritation persists, seek prompt medical attention. For eye contact, flush with running water for at least 15 minutes. Seek immediate medical attention/advice. If ingested, do not induce vomiting. Never give anything by mouth to an unconscious person. Seek immediate medical attention/advice.

Refer To Material Safety Data Sheet for further information.

Canadian Information:

Canadian Environmental Protection Act (CEPA) information: All ingredients listed appear on the Domestic Substances List (DSL).

WHMIS information: Refer to Section 2 for a WHMIS Classification for this product.

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

US Federal Information:

TSCA: All listed ingredients appear on the Toxic Substances Control Act (TSCA) inventory.

SECTION 16 - OTHER INFORMATION

Legend : ACGIH: American Conference of Governmental Industrial Hygienists
AIHA: American Industrial Hygiene Association
CAS: Chemical Abstract Services
CNS: Central Nervous System
HSDB: Hazardous Substances Data Bank
IARC: International Agency for Research on Cancer
Inh: Inhalation
LC: Lethal Concentration
LD: Lethal Dose
N/Ap: Not Applicable
N/Av: Not Available
NIOSH: National Institute of Occupational Safety and Health
NOEC: No observable effect concentration
NTP: National Toxicology Program
OECD: Organisation for Economic Co-operation and Development
OSHA: Occupational Safety and Health Administration
PEL: Permissible exposure limit
RTECS: Registry of Toxic Effects of Chemical Substances
STEL: Short Term Exposure Limit
TDG: Canadian Transportation of Dangerous Goods Act & Regulations
TLV: Threshold Limit Values
TWA: Time Weighted Average
WEEL: Workplace Environmental Exposure Level
WHMIS: Workplace Hazardous Materials Identification System

References :

1. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices for 2016.
2. International Agency for Research on Cancer Monographs, searched 2016.
3. Canadian Centre for Occupational Health and Safety, CCInfoWeb databases, 2016 (Chempendium, HSDB and RTECs).
4. Material Safety Data Sheets from manufacturer.
5. OECD - The Global Portal to Information on Chemical Substances - eChemPortal, 2016.

Prepared for: Radiator Specialty Co. of Canada 1711 Aimco Blvd. Mississauga, ON, Canada, L4W 1H7 Telephone: 905-625-9117 (Mon. - Fri., 8 AM - 4 PM) Please direct all enquiries to Radiator Specialty.	
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12. ECOLOGICAL INFORMATION

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