

Mopar(FCA US LLC Service & Customer Care Division)

Part Number: 673 Version No: 5.8

Safety Data Sheet according to OSHA HazCom Standard (2012) requirements

SECTION 1 Identification

Product Identifier

Product name	Mopar Air Intake & Throttle Body Cleaner (Aerosol)
Synonyms	68628279AA, 68621322AA
Proper shipping name	Aerosols, flammable, (each not exceeding 1 L capacity)
Other means of identification	Not Available

Recommended use of the chemical and restrictions on use

Fuel System Parts Cleaner Relevant identified uses

Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party

Registered company name	Mopar(FCA US LLC Service & Customer Care Division)	Mopar (FCA US LLC Service & Customer Care Division)
Address	26311 Lawrence Avenue, Center Line Michigan 48015 United States	26311 Lawerence Avenue, Center Line Michigan 48015 United States
Telephone	1-800-846-6727	1-800-846-6727
Fax	Not Available	Not Available
Website	Not Available	Not Available
Email	moparsds@fcagroup.com	moparsds@fcagroup.com

Emergency phone number

Association / Organisation	CHEMTREC	CHEMTREC
Emergency telephone numbers	+1 703-741-5970	+1 703-741-5970
Other emergency telephone numbers	248-512-8002	248-512-8002

SECTION 2 Hazard(s) identification

Classification of the substance or mixture

Chemwatch Hazard Ratings



Note: The hazard category numbers found in GHS classification in section 2 of this SDSs are NOT to be used to fill in the NFPA 704 diamond. Blue = Health Red = Fire Yellow = Reactivity White = Special (Oxidizer or water reactive substances)

Serious Eye Damage/Eye Irritation Category 2A, Specific Target Organ Toxicity - Single Exposure (Narcotic Effects) Category 3, Aerosols Classification Category 1

Label elements

Chemwatch Hazard Alert Code: 4 Issue Date: 10/12/2022

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Hazard pictogram(s)	
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Signal word Danger

Hazard statement(s)

H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
H222+H229	Extremely flammable aerosol. Pressurized container: may burst if heated.

Hazard(s) not otherwise classified

Contains gas under pressure; may explode if heated.

Precautionary statement(s) General

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.
P103	Read label before use.

Precautionary statement(s) Prevention

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P211	Do not spray on an open flame or other ignition source.
P251	Pressurized container: Do not pierce or burn, even after use.
P271	Use only outdoors or in a well-ventilated area.
P261	Avoid breathing gas.
P280	Wear protective gloves, protective clothing, eye protection and face protection.
P264	Wash all exposed external body areas thoroughly after handling.

Precautionary statement(s) Response

P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312	Call a POISON CENTER/doctor/physician/first aider/if you feel unwell.
P337+P313	If eye irritation persists: Get medical advice/attention.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Precautionary statement(s) Storage

P405	Store locked up.
P410+P412	Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.

Precautionary statement(s) Disposal

P501 Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.

SECTION 3 Composition / information on ingredients

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
67-64-1	90-100	acetone
426260-76-6*	3.456-3.6	heptane. branched. cyclic
142-82-5*	0.9-1.62	n-heptane
124-38-9*	10-30	Carbon Dioxide, Liquefied, Under Pressure
71-43-2	Not specified	benzene

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

SECTION 4 First-aid measures

Description of first aid measures		
Eye Contact	If aerosols come in contact with the eyes: Immediately hold the eyelids apart and flush the eye with fresh running water. Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper 	

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	 and lower lids. ▶ Seek medical attention without delay; if pain persists or recurs seek medical attention. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	 If solids or aerosol mists are deposited upon the skin: Flush skin and hair with running water (and soap if available). Remove any adhering solids with industrial skin cleansing cream. DO NOT use solvents. Seek medical attention in the event of irritation.
Inhalation	 If aerosols, fumes or combustion products are inhaled: Remove to fresh air. Lay patient down. Keep warm and rested. Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. If breathing is shallow or has stopped, ensure clear airway and apply resuscitation, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. Transport to hospital, or doctor.
Ingestion	 Immediately give a glass of water. First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor. If spontaneous vomiting appears imminent or occurs, hold patient's head down, lower than their hips to help avoid possible aspiration of vomitus.

Most important symptoms and effects, both acute and delayed See Section 11

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

- For acute or short term repeated exposures to acetone
- Symptoms of acetone exposure approximate ethanol intoxication.
- About 20% is expired by the lungs and the rest is metabolised. Alveolar air half-life is about 4 hours following two hour inhalation at levels near the Exposure Standard; in overdose, saturable metabolism and limited clearance, prolong the elimination half-life to 25-30 hours.
- There are no known antidotes and treatment should involve the usual methods of decontamination followed by supportive care.
- [Ellenhorn and Barceloux: Medical Toxicology]

Management

Measurement of serum and urine acetone concentrations may be useful to monitor the severity of ingestion or inhalation.

Inhalation Management:

- Maintain a clear airway, give humidified oxygen and ventilate if necessary.
- If respiratory irritation occurs, assess respiratory function and, if necessary, perform chest X-rays to check for chemical pneumonitis.
- Consider the use of steroids to reduce the inflammatory response.
- Treat pulmonary oedema with PEEP or CPAP ventilation.

Dermal Management:

P Remove any remaining contaminated clothing, place in double sealed, clear bags, label and store in secure area away from patients and staff.

- Irrigate with copious amounts of water.
- An emollient may be required.
- Eye Management:
- Irrigate thoroughly with running water or saline for 15 minutes.
- Stain with fluorescein and refer to an ophthalmologist if there is any uptake of the stain.

Oral Management:

No GASTRIC LAVAGE OR EMETIC

Encourage oral fluids

- Systemic Management:
- Monitor blood glucose and arterial pH.
- Ventilate if respiratory depression occurs.
- If patient unconscious, monitor renal function.
- Symptomatic and supportive care.

The Chemical Incident Management Handbook:

Guy's and St. Thomas' Hospital Trust, 2000 **BIOLOGICAL EXPOSURE INDEX**

These represent the determinants observed in specimens collected from a healthy worker exposed at the Exposure Standard (ES or TLV): Determinant Sampling Time Index

End of shift

Acetone in urine

NS: Non-specific determinant; also observed after exposure to other material

SECTION 5 Fire-fighting measures

Extinguishing media

- Alcohol stable foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.
- Water spray or fog Large fires only.
- SMALL FIRE:
- Water spray, dry chemical or CO2
- LARGE FIRE:
- Water spray or fog.

Special hazards arising from the substrate or mixture

Fire Incompatibility

Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result

50 mg/L

Comments

NS

Fire Fighting	
Fire/Explosion Hazard	carbon dioxide (CO2) other pyrolysis products typical of burning organic material. Contains low boiling substance: Closed containers may rupture due to pressure buildup under fire conditions. BEWARE: Empty solvent, paint, lacquer and flammable liquid drums present a severe explosion hazard if cut by flame torch or welded. Even when thoroughly cleaned or reconditioned the drum seams may retain sufficient solvent to generate an explosive atmosphere in the drum. WARNING: Aerosol containers may present pressure related hazards.

SECTION 6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

Minor Spills	 Clean up all spills immediately. Avoid breathing vapours and contact with skin and eyes. Wear protective clothing, impervious gloves and safety glasses. Shut off all possible sources of ignition and increase ventilation. Wipe up. If safe, damaged cans should be placed in a container outdoors, away from all ignition sources, until pressure has dissipated. Undamaged cans should be gathered and stowed safely.
Major Spills	 Clear area of personnel and move upwind. Alert Fire Brigade and tell them location and nature of hazard. May be violently or explosively reactive. Wear breathing apparatus plus protective gloves. Prevent, by any means available, spillage from entering drains or water courses No smoking, naked lights or ignition sources. Increase ventilation. Stop leak if safe to do so. Water spray or fog may be used to disperse / absorb vapour. Absorb or cover spill with sand, earth, inert materials or vermiculite. If safe, damaged cans should be placed in a container outdoors, away from ignition sources, until pressure has dissipated. Undamaged cans should be gathered and stowed safely. Collect residues and seal in labelled drums for disposal.

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 Handling and storage

Precautions for safe handling	
Safe handling	 Avoid all personal contact, including inhalation. Wear protective clothing when risk of exposure occurs. Use in a well-ventilated area. Prevent concentration in hollows and sumps. DO NOT enter confined spaces until atmosphere has been checked. Avoid smoking, naked lights or ignition sources. Avoid contact with incompatible materials. When handling, DO NOT eat, drink or smoke. DO NOT incinerate or puncture aerosol cans. DO NOT spray directly on humans, exposed food or food utensils. Avoid physical damage to containers. Always wash hands with soap and water after handling. Work clothes should be laundered separately. Use good occupational work practice. Observe manufacturer's storage and handling recommendations contained within this SDS. Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.
Other information	

Conditions for safe storage, including any incompatibilities

Suitable container	 For low viscosity materials (i) : Drums and jerry cans must be of the non-removable head type. (ii) : Where a can is to be used as an inner package, the can must have a screwed enclosure. For materials with a viscosity of at least 2680 cSt. (23 deg. C) For manufactured product having a viscosity of at least 250 cSt. (23 deg. C) Manufactured product that requires stirring before use and having a viscosity of at least 20 cSt (25 deg. C): (i) Removable head packaging; (ii) Cans with friction closures and (iii) low pressure tubes and cartridges may be used. Where combination packages are used, and the inner packages are of glass, there must be sufficient inert cushioning material in contact with inner and outer packages In addition, where inner packagings are glass and contain liquids of packing group I there must be sufficient inert absorbent to absorb any spillage, unless the outer packaging is a close fitting moulded plastic box and the substances are not incompatible with the plastic. Aerosol dispenser. Check that containers are clearly labelled.
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	Acetone:
	may react violently with chloroform, activated charcoal, aliphatic amines, bromine, bromine trifluoride, chlorotriazine, chromic(IV) acid,
	chromic(VI) acid, chromium trioxide, chromyl chloride, hexachloromelamine, iodine heptafluoride, iodoform, liquid oxygen, nitrosyl chloride,
	nitrosyl perchlorate, nitryl perchlorate, perchloromelamine, peroxomonosulfuric acid, platinum, potassium tert-butoxide, strong acids, sulfur
	dichloride, trichloromelamine, xenon tetrafluoride
	reacts violently with bromoform and chloroform in the presence of alkalies or in contact with alkaline surfaces.
	may form unstable and explosive peroxides in contact with strong oxidisers, fluorine, hydrogen peroxide (90%), sodium perchlorate,
	2-methyl-1,3-butadiene
	can increase the explosive sensitivity of nitromethane on contact flow or agitation may generate electrostatic charges due to low conductivity
	Issolves or attacks most rubber, resins, and plastics (polyethylenes, polyester, vinyl ester, PVC, Neoprene, Viton)
Storage incompatibility	Ketones in this group:
	are reactive with many acids and bases liberating heat and flammable gases (e.g., H2).
	react with reducing agents such as hydrides, alkali metals, and nitrides to produce flammable gas (H2) and heat.
	are incompatible with isocyanates, aldehydes, cyanides, peroxides, and anhydrides.
	react violently with aldehydes, HNO3 (nitric acid), HNO3 + H2O2 (mixture of nitric acid and hydrogen peroxide), and HCIO4 (perchloric acid).
	may react with hydrogen peroxide to form unstable peroxides; many are heat- and shock-sensitive explosives.
	A significant property of most ketones is that the hydrogen atoms on the carbons next to the carbonyl group are relatively acidic when compared
	to hydrogen atoms in typical hydrocarbons. Under strongly basic conditions these hydrogen atoms may be abstracted to form an enolate anion.
	This property allows ketones, especially methyl ketones, to participate in condensation reactions with other ketones and aldehydes. This type of
	condensation reaction is favoured by high substrate concentrations and high pH (greater than 1 wt% NaOH).
	Avoid reaction with oxidising agents

SECTION 8 Exposure controls / personal protection

Control parameters

Occupational Exposure Limits (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
US OSHA Permissible Exposure Limits (PELs) Table Z-1	acetone	Acetone	1000 ppm / 2400 mg/m3	Not Available	Not Available	Not Available
US NIOSH Recommended Exposure Limits (RELs)	acetone	Acetone	250 ppm / 590 mg/m3	Not Available	Not Available	Not Available
US OSHA Permissible Exposure Limits (PELs) Table Z-1	n-heptane	Heptane (n-Heptane)	500 ppm / 2000 mg/m3	Not Available	Not Available	Not Available
US NIOSH Recommended Exposure Limits (RELs)	n-heptane	n-Heptane	85 ppm / 350 mg/m3	Not Available	440 (15-minute) ppm / 1800 (15-minute) mg/m3	Not Available
US OSHA Permissible Exposure Limits (PELs) Table Z-1	Carbon Dioxide, Liquefied, Under Pressure	Carbon dioxide	5000 ppm / 9000 mg/m3	Not Available	Not Available	Not Available
US NIOSH Recommended Exposure Limits (RELs)	Carbon Dioxide, Liquefied, Under Pressure	Carbon dioxide	5000 ppm / 9000 mg/m3	54000 mg/m3 / 30000 ppm	Not Available	Not Available
US OSHA Permissible Exposure Limits (PELs) Table Z-1	benzene	Benzene	1 ppm	5 ppm	Not Available	Not Available
US OSHA Permissible Exposure Limits (PELs) Table Z-2	benzene	Benzene	10 ppm	25 ppm	50 (10 min) ppm	(Z37.40-1969)
US NIOSH Recommended Exposure Limits (RELs)	benzene	Benzene	0.1 ppm	1 ppm	Not Available	Ca; See Appendix A

Emergency Limits

Ingredient	TEEL-1	TEEL-2		TEEL-3
acetone	Not Available	Not Available		Not Available
n-heptane	500 ppm	830 ppm		5000* ppm
benzene	Not Available	Not Available		Not Available
Ingredient	Original IDLH		Revised IDLH	
acetone	2,500 ppm		Not Available	
heptane, branched, cyclic	Not Available		Not Available	
n-heptane	750 ppm		Not Available	
Carbon Dioxide, Liquefied, Under Pressure	40,000 ppm		Not Available	
benzene	500 ppm		Not Available	

Occupational Exposure Banding

Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit	
heptane, branched, cyclic	E	≤ 0.1 ppm	
Notes:	Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.		

MATERIAL DATA

IFRA Prohibited Fragrance Substance

The International Fragrance Association (IFRA) Standards form the basis for the globally accepted and recognized risk management system for the safe use of fragrance ingredients and are part of the IFRA Code of Practice. This is the self-regulating system of the industry, based on risk assessments carried out by an independent Expert Panel

These exposure guidelines have been derived from a screening level of risk assessment and should not be construed as unequivocally safe limits. ORGS represent an 8-hour time-weighted average unless specified otherwise.

CR = Cancer Risk/10000; UF = Uncertainty factor:

TLV believed to be adequate to protect reproductive health:

LOD: Limit of detection

Toxic endpoints have also been identified as:

 $\begin{array}{l} {\sf D} = {\sf Developmental}; \ {\sf R} = {\sf Reproductive}; \ {\sf TC} = {\sf Transplacental carcinogen} \\ {\sf Jankovic J., Drake F.: A Screening Method for Occupational Reproductive} \\ {\sf American Industrial Hygiene Association Journal 57: 641-649 (1996)} \end{array}$

Exposed individuals are NOT reasonably expected to be warned, by smell, that the Exposure Standard is being exceeded.

Odour Safety Factor (OSF) is determined to fall into either Class C, D or E.

The Odour Safety Factor (OSF) is defined as:

OSF= Exposure Standard (TWA) ppm/ Odour Threshold Value (OTV) ppm

Classification into classes follows:

ClassOSF Description

A 550 Over 90% of exposed individuals are aware by smell that the Exposure Standard (TLV-TWA for example) is being reached, even when distracted by working activities

- B 26-550 As "A" for 50-90% of persons being distracted
- C 1-26 As "A" for less than 50% of persons being distracted
- D 0.18-1 10-50% of persons aware of being tested perceive by smell that the Exposure Standard is being reached

E <0.18 As "D" for less than 10% of persons aware of being tested

Odour Threshold Value: 3.6 ppm (detection), 699 ppm (recognition)

Saturation vapour concentration: 237000 ppm @ 20 C NOTE: Detector tubes measuring in excess of 40 ppm, are available.

Exposure at or below the recommended TLV-TWA is thought to protect the worker against mild irritation associated with brief exposures and the bioaccumulation, chronic irritation of the respiratory tract and headaches associated with long-term acetone exposures. The NIOSH REL-TWA is substantially lower and has taken into account slight irritation experienced by volunteer subjects at 300 ppm. Mild irritation to acclimatised workers begins at about 750 ppm - unacclimatised subjects will experience irritation at about 350-500 ppm but acclimatisation can occur rapidly. Disagreement between the peak bodies is based largely on the view by ACGIH that widespread use of acetone, without evidence of significant adverse health effects at higher concentrations, allows acceptance of a higher limit.

Half-life of acetone in blood is 3 hours which means that no adjustment for shift-length has to be made with reference to the standard 8 hour/day, 40 hours per week because body clearance occurs within any shift with low potential for accumulation.

A STEL has been established to prevent excursions of acetone vapours that could cause depression of the central nervous system.

Odour Safety Factor(OSF)

OSF=38 (ACETONE)

for benzene

Odour Threshold Value: 34 ppm (detection), 97 ppm (recognition)

NOTE: Detector tubes for benzene, measuring in excess of 0.5 ppm, are commercially available. The relative quality of epidemiological data and quantitative health risk assessments related to documented and theoretical leukaemic deaths constitute the basis of the TLV-recommendation.

One study [Dow Chemical] demonstrates a significant fourfold increase in myelogenous leukaemia for workers exposed to average benzene concentrations of about 5 ppm for an average of 9 years and that 2 out of four individuals in the study who died from leukaemia were characterised as having been exposed to average benzene levels below 2 ppm. Based on such findings the estimated risk of leukaemia in workers exposed at daily benzene concentrations of 10 ppm for 40 years is 155 times that of unexposed workers; at 1 ppm the risk falls to 1.7 times whilst at 0.1 ppm the risk is about the same in the two groups. A revision of the TLV-TWA to 0.1 ppm was proposed in 1990 but this has been revised upwards as result of industry initiatives.

Typical toxicities displayed following inhalation:

- At 25 ppm (8 hours): no effect
- 50-150 ppm: signs of intoxication within 5 hours
- 500-1500 ppm: signs of intoxication within 1 hour
- 7500 ppm: severe intoxication within 30-60 minutes
- 20000 ppm: fatal within 5-10 minutes

Some jurisdictions require that health surveillance be conducted on occupationally exposed workers. Some surveillance should emphasise (i) demography, occupational and medical history and health advice (ii) baseline blood sample for haematological profile (iii) records of personal exposure.

NOTE E: Substances with specific effects on human health that are classified as carcinogenic, mutagenic and/ or toxic for reproduction in categories 1 or 2 are ascribed Note E if they are classified as very toxic (T+), toxic (T) or harmful (Xn). For these substances the risk phrases R20 ,R21, R22, R23, R24, R25, R26, R27, R28, R39, R68, R48 and R65 and all combinations of these risk phrases shall be proceeded by the word "Also".

R45-23: May cause cancer. Also toxic by inhalation

This note applies only to certain complex oil-derived substances in Annex VI.

European Union (EU) List of harmonised classification and labelling hazardous substances, Table 3.1, Annex VI, Regulation (EC) No 1272/2008 (CLP) - up to the latest ATP

Exposure controls

Appropriate engineering controls	Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection. The basic types of engineering controls are: Process controls which involve changing the way a job activity or process is done to reduce the risk. Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use. Employers may need to use multiple types of controls to prevent employee overexposure. General exhaust is adequate under normal conditions. If risk of overexposure exists, wear SAA approved respirator. Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh				
	Type of Contaminant:	Speed:			
	aerosols, (released at low velocity into zone of active gene	0.5-1 m/s			
	direct spray, spray painting in shallow booths, gas dischar	1-2.5 m/s (200-500 f/min.)			
	Within each range the appropriate value depends on:				
	Lower end of the range	Upper end of the range			

	1: Room air currents minimal or favourable to capture	1: Disturbing room air currents		
	2: Contaminants of low toxicity or of nuisance value only.	2: Contaminants of high toxicity		
	3: Intermittent, low production.	3: High production, heavy use		
	4: Large hood or large air mass in motion	4: Small hood-local control only		
	Simple theory shows that air velocity falls rapidly with distant with the square of distance from the extraction point (in sim accordingly, after reference to distance from the contamina 1-2 m/s (200-400 f/min.) for extraction of solvents generate considerations, producing performance deficits within the e factors of 10 or more when extraction systems are installed	nce away from the opening of a si ple cases). Therefore the air spec- ting source. The air velocity at the d in a tank 2 meters distant from t xtraction apparatus, make it esser d or used.	mple extraction pipe. Velocity generally decreases d at the extraction point should be adjusted, extraction fan, for example, should be a minimum of he extraction point. Other mechanical tial that theoretical air velocities are multiplied by	
Personal protection				
Eye and face protection	No special equipment for minor exposure i.e. when handling small quantities. OTHERWISE: For potentially moderate or heavy exposures: Safety glasses with side shields. NOTE: Contact lenses pose a special hazard; soft lenses may absorb irritants and ALL lenses concentrate them. Safety glasses with side shields. Chemical goggles. Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent]			
Skin protection	See Hand protection below			
Hands/feet protection	 Wear general protective gloves, eg. light weight rubber gloves. No special equipment needed when handling small quantities. OTHERWISE: For potentially moderate exposures: Wear general protective gloves, eg. light weight rubber gloves. For potentially heavy exposures: Wear chemical protective gloves, eg. PVC. and safety footwear. 			
Body protection	See Other protection below			
Other protection	No special equipment needed when handling small quantiti OTHERWISE: • Overalls. • Skin cleansing cream. • Eyewash unit. • Do not spray on hot surfaces.	ies.		

Recommended material(s)

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the: "Forsberg Clothing Performance Index".

The effect(s) of the following substance(s) are taken into account in the *computer-generated* selection:

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Material	СРІ
BUTYL	С
BUTYL/NEOPRENE	С
CPE	С
HYPALON	С
NATURAL RUBBER	С
NATURAL+NEOPRENE	С
NEOPRENE	С
NITRILE	С
NITRILE+PVC	С
PE/EVAL/PE	С
PVA	С
PVC	С
PVDC/PE/PVDC	С
SARANEX-23	С
SARANEX-23 2-PLY	С
TEFLON	С
VITON	С

Respiratory protection

Type AX Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required. Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	AX-AUS	-	AX-PAPR-AUS / Class 1
up to 50 x ES	-	AX-AUS / Class 1	-
up to 100 x ES	-	AX-2	AX-PAPR-2 ^

^ - Full-face

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

- Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content.
- The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate.
- Cartridge performance is affected by humidity. Cartridges should be changed after 2 hr of continuous use unless it is determined that the humidity is less than 75%, in which case, cartridges can be used for 4 hr. Used cartridges should be discarded

С

VITON/NEOPRENE

* CPI - Chemwatch Performance Index

A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion

C: Poor to Dangerous Choice for other than short term immersion

NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -

* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

daily, regardless of the length of time used▶ Generally not applicable.

Aerosols, in common with most vapours/ mists, should never be used in confined spaces without adequate ventilation. Aerosols, containing agents designed to enhance or mask smell, have triggered allergic reactions in predisposed individuals.

Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant. Protection Factors (defined as the ratio of contaminant outside and inside the mask) may also be important.

Required minimum protection factor	Maximum gas/vapour concentration present in air p.p.m. (by volume)	Half-face Respirator	Full-Face Respirator
up to 10	1000	AX-AUS / Class 1	-
up to 50	1000	-	AX-AUS / Class 1
up to 50	5000	Airline *	-
up to 100	5000	-	AX-2
up to 100	10000	-	AX-3
100+		-	Airline**

** - Continuous-flow or positive pressure demand.

 $\begin{array}{l} \mathsf{A}(\mathsf{All classes}) = \mathsf{Organic vapours, B} \; \mathsf{AUS or B1} = \mathsf{Acid gases, B2} = \mathsf{Acid gas or hydrogen} \\ \mathsf{cyanide}(\mathsf{HCN}), \mathsf{B3} = \mathsf{Acid gas or hydrogen cyanide}(\mathsf{HCN}), \mathsf{E} = \mathsf{Sulfur dioxide}(\mathsf{SO2}), \mathsf{G} = \\ \mathsf{Agricultural chemicals, K} = \mathsf{Ammonia}(\mathsf{NH3}), \mathsf{Hg} = \mathsf{Mercury, NO} = \mathsf{Oxides of nitrogen, MB} \\ = \mathsf{Methyl bromide, AX} = \mathsf{Low boiling point organic compounds}(\mathsf{below 65 deg C}) \\ \end{array}$

SECTION 9 Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Colourless to light yellow		
Physical state	Compressed Gas	Relative density (Water = 1)	0.79
Odour	Acetone odour. Solvent-like odour	Partition coefficient n-octanol / water	Not Available
Odour threshold	306 – 653 ppm, 737 – 1574 mg/m ³	Auto-ignition temperature (°C)	465
pH (as supplied)	7	Decomposition temperature (°C)	Not Available
Melting point / freezing point (°C)	Not Available	Viscosity (cSt)	0.42
Initial boiling point and boiling range (°C)	56	Molecular weight (g/mol)	Not Available
Flash point (°C)	-18	Taste	Not Available
Evaporation rate	6 BuAC = 1	Explosive properties	Not Available
Flammability	HIGHLY FLAMMABLE.	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Available	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	Not Available	Volatile Component (%vol)	9.6
Vapour pressure (kPa)	24.70	Gas group	Not Available
Solubility in water	Soluble in alcohols. Soluble in aromatic hydrocarbons. Soluble in ethanol. Soluble in ether. Soluble in heptane. Soluble in toluene. Soluble in xylene	pH as a solution (Not Available%)	Not Available
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available

SECTION 10 Stability and reactivity

Reactivity	See section 7
Chemical stability	 Elevated temperatures. Presence of open flame. Product is considered stable.

	Hazardous polymerisation will not occur.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 Toxicological information

Information on toxicological ef	fects
Inhaled	Evidence shows, or practical experience predicts, that the material produces irritation of the respiratory system, in a substantial number of individuals, following inhalation. In contrast to most organs, the lung is able to respond to a chemical insult by first removing or neutralising the irritant and then repairing the damage. The repair process, which initially evolved to protect mammalian lungs from foreign matter and antigens, may however, produce further lung damage resulting in the impairment of gas exchange, the primary function of the lungs. Respiratory tract irritation of the nesults in an inflammatory response involving the recruitment and activation of many cell types, mainly derived from the vascular system. Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by narcosis, reduced alertness, loss of reflexes, lack of coordination and vertigo. The vapour is discomforting WARNING:Intentional misuse by concentrating/inhaling contents may be lethal . Waterial is highly volatile and may quickly form a concentrated atmosphere in confined or unventilated areas. The vapour may displace and replace air in breathing zone, acting as a simple asphyxiant. This may happen with little warning of overexposure. The use of a quantity of material in an unventilated or confined space may result in increased exposure and an irritating atmosphere developing. Before starting consider control of exposure by mechanical ventilation. Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual. Exposure to ketone vapours may produce nose, throat and mucous membrane irritation. High concentrations of vapour may produce central nervous system depression characterised by headache, vertigo, loss of coordination, narcosis and cardiorespiratory failure. Some ketones produce neurological disorders (polyneuropathy) characterised by bilateral symmetrical paresthesia and muscle weakness primarily in the
Ingestion	Swallowing of the liquid may cause aspiration of vomit into the lungs with the risk of haemorrhaging, pulmonary oedema, progressing to chemical pneumonitis; serious consequences may result. Signs and symptoms of chemical (aspiration) pneumonitis may include coughing, gasping, choking, burning of the mouth, difficult breathing, and bluish coloured skin (cyanosis). The material has NOT been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence. The material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (e.g liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health). Gastrointestinal tract discomfort may produce nausea and vomiting. In an occupational setting however, ingestion of insignificant quantities is not thought to be cause for concern. Accidental ingestion of the material may be damaging to the health of the individual.
Skin Contact	The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting. Spray mist may produce discomfort Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected. Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.
Eye	Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn).
Chronic	Repeated or long-term occupational exposure is likely to produce cumulative health effects involving organs or biochemical systems. Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems. Harmful: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed. Serious damage (clear functional disturbance or morphological change which may have toxicological significance) is likely to be caused by repeated or prolonged exposure. As a rule the material produces, or contains a substance which produces severe lesions. Such damage may become apparent following direct application in subchronic (90 day) toxicity studies or following sub-acute (28 day) or chronic (two-year) toxicity tests. There is sufficient evidence to provide a strong presumption that human exposure to the material may result in impaired fertility on the basis of: - clear evidence in animal studies of impaired fertility in the absence of toxic effects, or evidence of impaired fertility occurring at around the same dose levels as other toxic effects but which is not a secondary non-specific consequence of other toxic effects. Chronic exposure to benzene may cause headache, fatigue, loss of appetite and lassitude with incipient blood effects including anaemia and blood changes. Benzene is a myelotoxicant known to suppress bone- marrow cell proliferation and to induce haematologic disorders in humans and animals. Signs of benzene-induced aplastic anaemia include suppression of leukocytes (leukopenia), red cells (anaemia), platelets

	 (thrombocytopenia) or all three cell types (pancytopenia). C toxic effect is insidious and often reversible injury to the blor relationship between exposure to benzene and production of exposure and the production of lymphoma and multiple myer and impairment of hearing. Benzene haemotoxicity and leukaemogenicity involve meta apoptosis. (Yoon et al Environmental Health Perspectives, You and You	lassic symptoms include weakness, purpura, and haemorrhage. The most significant od forming tissue. Leukaemia may develop. Occupational exposures have shown a of myelogenous leukaemia. There may also be a relationship between benzene eloma. In chronic exposure, workers exhibit signs of central nervous system lesions bolism, growth factor regulation, oxidative stress, DNA damage, cell regulation, and 111, pp 1411-1420, 2003)
	Workers exposed to 700 ppm acetone for 3 hours/day for 7 attacks of giddiness and loss of strength. Exposure to acetor Prolonged or repeated skin contact may cause drying with or	-15 years showed inflammation of the respiratory tract, stomach and duodenum, one may enhance liver toxicity of chlorinated solvents. cracking, irritation and possible dermatitis following.
Mopar Air Intake & Throttle	ΤΟΧΙΟΙΤΥ	IRRITATION
Body Cleaner (Aerosol)	Not Available	Not Available
	ΤΟΧΙΟΙΤΥ	IRRITATION
	Dermal (rabbit) LD50: 20000 mg/kg ^[2]	Eye (human): 500 ppm - irritant
	Inhalation(Mouse) LC50; 44 mg/L4h ^[2]	Eye (rabbit): 20mg/24hr -moderate
	Oral (Rat) LD50; 5800 mg/kg ^[2]	Eye (rabbit): 3.95 mg - SEVERE
acetone		Eye: adverse effect observed (irritating) ^[1]
		Skin (rabbit): 500 mg/24hr - mild
		Skin (rabbit):395mg (open) - mild
		Skin: no adverse effect observed (not irritating) ^[1]
	тохісіту	IRRITATION
	dermal (rat) LD50: >2800-3100 mg/kg ^[1]	Not Available
	dermal (rat) LD50: >2800-3100 mg/kg ^[1]	
heptane, branched, cyclic	Inhalation(Rat) LC50; >23.3 mg/l4h ^[1]	
• • • • •	Inhalation(Rat) LC50; >25.2 mg/l4h ^[1]	
	Oral (Rat) LD50; >8000 mg/kg ^[1]	
	Oral (Rat) LD50; >8000 mg/kg ^[1]	
	ΤΟΧΙΟΙΤΥ	IRRITATION
n-heptane	Inhalation (Human) TCLo: 1000 ppm/6m ^[2]	Eye: no adverse effect observed (not irritating) ^[1]
		Skin: no adverse effect observed (not irritating) ^[1]
	тохісіту	IRRITATION
Carbon Diovide Liquefied	Inhalation (Human)LCLo: 9 pph/5 m (9%) ^[2]	Not Available
Under Pressure	Inhalation (Human)TCLo: 2000 ppm ^[2]	
	Inhalation (Rat)LCLo: 657190 ppm/15 m ^[2]	
	ΤΟΧΙΟΙΤΥ	IRRITATION
	dermal (mouse) LD50: 48 mg/kg ^[2]	Eye (rabbit): 2 mg/24h - SEVERE
benzene	Inhalation(Rat) LC50: 43.767 mg/L4h ^[1]	Eve: adverse effect observed (irritating) ^[1]
	Oral (Rat) LD50: 930 mg/kg ^[2]	SKIN (rabbit):20 mg/24h - moderate
		Skin: adverse effect observed (irritating) ^[1]
Legena:	 Value obtained from Europe ECHA Registered Substance specified data extracted from RTECS - Register of Toxic Efficiency 	es - Acute toxicity 2. Value obtained from manufacturer's SDS. Unless otherwise fect of chemical Substances
Mopar Air Intake & Throttle Body Cleaner (Aerosol)	Asthma-like symptoms may continue for months or even ye known as reactive airways dysfunction syndrome (RADS) w criteria for diagnosing RADS include the absence of previou asthma-like symptoms within minutes to hours of a docume airflow pattern on lung function tests, moderate to severe bu lymphocytic inflammation, without eosinophilia. RADS (or a the concentration of and duration of exposure to the irritatin	ars after exposure to the material ends. This may be due to a non-allergic condition which can occur after exposure to high levels of highly irritating compound. Main us airways disease in a non-atopic individual, with sudden onset of persistent inted exposure to the irritant. Other criteria for diagnosis of RADS include a reversible ronchial hyperreactivity on methacholine challenge testing, and the lack of minimal sthma) following an irritating inhalation is an infrequent disorder with rates related to g substance. On the other hand, industrial bronchitis is a disorder that occurs as a

ACETONE

heptane, branched, cyclic No significant acute toxicological data identified in literature search.

Inhalation (man) TCLo: 150 ppm/1y - I

disorder is characterized by difficulty breathing, cough and mucus production.

spongy layer (spongiosis) and intracellular oedema of the epidermis.

BENZENE Data demonstrate that during inhalation exposure, aromatic hydrocarbons undergo substantial partitioning into adipose tissues. Following cessation of exposure, the level of aromatic hydrocarbons in body fats rapidly declines. Thus, the aromatic hydrocarbons are unlikely to bioaccumulate in the body. Selective partitioning of the aromatic hydrocarbons into the non-adipose tissues is unlikely. No data is available

The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of

dermatitis is often characterised by skin redness (erythema) and swelling epidermis. Histologically there may be intercellular oedema of the

	regarding distribution following dermal absorption. However, distribution following this route with inhalation exposure. Aromatics hydrocarbons may undergo several different Phase I dealkylation, hydroxylation followed by Phase II conjugation to glycine, sulfation or glucuronidation. However, the majo that of the alkylbenzenes and consists of: (1) oxidation of one of the alkyl groups to an alcol carboxylic acid; (3) the carboxylic acid is then conjugated with glycine to form a hippuric aci of a complex mixture of isomeric triphenols, the sulfate and glucuronide conjugates of dime dimethylhippuric acids. Consistent with the low propensity for bioaccumulation of aromatic h significant inducers of their own metabolism. The predominant route of excretion of aromatic hydrocarbons following inhalation exposure parent compound, or urinary excretion of its metabolites. When oral administration occurs, thydrocarbons, presumably due to the first pass effect in the liver. Under these circumstance route of excretion. The material may cause skin irritation after prolonged or repeated exposure and may produ dermatitis is often characterised by skin redness (erythema) and swelling the epidermis. His spongy layer (spongiosis) and intracellular oedema of the epidermis.	of exposure is likely to resemble the pattern occurring and oxidation reactions which may or may not be r predominant biotransformation pathway is typical of hol moiety; (2) oxidation of the hydroxyl group to a d. The minor metabolites can be expected to consist thylbenzyl alcohols, dimethylbenzoic acids and hydrocarbons, these substances are likely to be involves either exhalation of the unmetabolized here is little exhalation of unmetabolized these hs, urinary excretion of metabolites is the dominant ce a contact dermatitis (nonallergic). This form of stologically there may be intercellular oedema of the TO HUMANS .
Mopar Air Intake & Throttle Body Cleaner (Aerosol) & ACETONE	for acetone: The acute toxicity of acetone is low. Acetone is not a skin irritant or sensitiser but is a defatt subchronic toxicity of acetone has been examined in mice and rats that were administered i by oral gavage. Acetone-induced increases in relative kidney weight changes were observe study. Acetone treatment caused increases in the relative liver weight in male and female ra- effects and the effects may have been associated with microsomal enzyme induction. Haen were also noted in male rats along with hyperpigmentation in the spleen. The most notable decreased spleen weights. Overall, the no-observed-effect-levels in the drinking water study. (2258 mg/kg/d), 2% for female mice (5945 mg/kg/d), and 5% for female rats (3100 mg/kg/d) reduction in foetal weight, and a slight, but statistically significant increase in the percent inc 15,665 mg/m3 and in rats at 26,100 mg/m3. The no-observable-effect level for developmen rats and mice. Teratogenic effects were not observed in rats and mice tested at 26,110 and 15,665 mg/m3 in mice treated with up to 0.2 mL of acetone did not reveal any increase in organ tumor inci The scientific literature contains many different studies that have measured either the neuror response of humans exposed to acetone. Effect levels ranging from about 600 to greater th studies with acetone-exposed employees have recently shown that 8-hr exposures in excess dose-related changes in response time, vigilance, or digit span scores. Clinical case studies research, and occupational field evaluations all indicate that the NOAEL for this effect is 23.	ing agent to the skin. Acetone is an eye irritant. The acetone in the drinking water and again in rats treated ad in male and female rats used in the oral 13-week ats that were not associated with histopathologic natologic effects consistent with macrocytic anaemia findings in the mice were increased liver and y were 1% for male rats (900 mg/kg/d) and male mice b. For developmental effects, a statistically significant cidence of later resorptions were seen in mice at tal toxicity was determined to be 5220 mg/m3 for both respectively. Lifetime dermal carcinogenicity studies dence relative to untreated control animals. whehavioural performance or neurophysiological an 2375 mg/m3 were not associated with any s, controlled human volunteer studies, animal 75 mg/m3 or greater.
Acute Toxicity	× Carcinogenicity	×
Skin Irritation/Corrosion	× Reproductivity	×
Serious Eye Damage/Irritation	✓ STOT - Single Exposure	×
Respiratory or Skin sensitisation	× STOT - Repeated Exposure	×
Mutagenicity	× Aspiration Hazard	×
Mutagenicity	X Aspiration Hazard	X

eg

Data entrier not available of according to a contract of according to a contract of a c

SECTION 12 Ecological information

						-
Mopar Air Intake & Throttle Body Cleaner (Aerosol)	Endpoint	Test Duration (hr)	Species	V	alue	Source
	Not Available	Not Available	Not Available	A A	lot vailable	Not Available
	Endpoint	Test Duration (hr)	Species	Value		Source
	NOEC(ECx)	12h	Fish	0.001mg/L	-	4
acetone	EC50	48h	Crustacea	6098.4mg	/L	5
	LC50	96h	Fish	3744.6-50	00.7mg/L	4
	EC50	96h	Algae or other aquatic plants	9.873-27.6	684mg/l	4
heptane, branched, cyclic Not Ava	Endpoint	Test Duration (hr)	Species	V	alue (Source
	Not Available	Not Available	Not Available	N A	lot vailable	Not Availabl
	Endpoint	Test Duration (hr)	Species	Va	lue	Sourc
	EC50	48h	Crustacea	0.6	64mg/l	2
n-heptane	NOEC(ECx)	504h	Crustacea	0.1	17mg/l	2
LC	LC50	96h	Fish	34	46.8mg/L	4
Carbon Dioxide, Liquefied, Under Pressure	Endpoint	Test Duration (hr)	Species		Value	Sourc
	LC50	96h	Fish		35mg/l	1
	Endpoint	Test Duration (hr)	Species	Value		Sourc
benzene	EC50	48h	Crustacea	7 578-13	.983ma/L	4

	LC50	96h	Fish	2.54-7.217mg/L	4
	EC50	96h	Algae or other aquatic plants	>1360mg/l	1
	EC50(ECx)	24h	Algae or other aquatic plants	<0.001mg/L	4
	ErC50	72h	Algae or other aquatic plants	>1360mg/l	1
	EC50	72h	Algae or other aquatic plants	29mg/l	1
Legend:	Extracted from Ecotox databas - Bioconcentrat	1. IUCLID Toxicity Data 2. Europe ECHA Regis e - Aquatic Toxicity Data 5. ECETOC Aquatic F ion Data 8. Vendor Data	stered Substances - Ecotoxicological Information Hazard Assessment Data 6. NITE (Japan) - Biod	n - Aquatic Toxicity 4. L concentration Data 7. M	JS EPA, 1ETI (Japan)

For Ketones: Ketones, unless they are alpha, beta--unsaturated ketones, can be considered as narcosis or baseline toxicity compounds.

Aquatic Fate: Hydrolysis of ketones in water is thermodynamically favourable only for low molecular weight ketones. Reactions with water are reversible with no permanent change in the structure of the ketone substrate. Ketones are stable to water under ambient environmental conditions. When pH levels are greater than 10, condensation reactions can occur which produce higher molecular weight products. Under ambient conditions of temperature, pH, and low concentration, these condensation reactions are unfavourable. Based on its reactions in air, it seems likely that ketones undergo photolysis in water.

Terrestrial Fate: It is probable that ketones will be biodegraded by micro-organisms in soil and water.

Ecotoxicity: Ketones are unlikely to bioconcentrate or biomagnify.

DO NOT discharge into sewer or waterways.

for acetone: log Kow: -0.24 Half-life (hr) air: 312-1896 Half-life (hr) H2O surface water: 20 Henry's atm m3 /mol: 3.67E-05 BOD 5: 0.31-1.76,46-55% COD: 1.12-2.07 ThOD: 2.2

BCF: 0.69

Environmental fate:

Acetone preferentially locates in the air compartment when released to the environment. A substantial amount of acetone can also be found in water, which is consistent with the high water to air partition coefficient and its small, but detectable, presence in rain water, sea water, and lake water samples. Very little acetone is expected to reside in soil, biota, or suspended solids. This is entirely consistent with the physical and chemical properties of acetone and with measurements showing a low propensity for soil absorption and a high preference for moving through the soil and into the ground water

In air, acetone is lost by photolysis and reaction with photochemically produced hydroxyl radicals; the estimated half-life of these combined processes is about 22 days. The relatively long half-life allows acetone to be transported long distances from its emission source.

Acetone is highly soluble and slightly persistent in water, with a half-life of about 20 hours; it is minimally toxic to aquatic life.

Acetone released to soil volatilises although some may leach into the ground where it rapidly biodegrades.

Acetone does not concentrate in the food chain.

Acetone meets the OECD definition of readily biodegradable which requires that the biological oxygen demand (BOD) is at least 70% of the theoretical oxygen demand (THOD) within the 28-day test period

Drinking Water Standard: none available.

Soil Guidelines: none available. Air Quality Standards: none available.

Ecotoxicity:

Testing shows that acetone exhibits a low order of toxicity

Fish LC50: brook trout 6070 mg/l; fathead minnow 15000 mg/l

Bird LC0 (5 day): Japanese quail, ring-neck pheasant 40,000 mg/l

Daphnia magna LC50 (48 h): 15800 mg/l; NOEC 8500 mg/l

Aquatic invertebrate 2100 - 16700 mg/l

Aquatic plant NOEC: 5400-7500 mg/l Daphnia magna chronic NOEC 1660 mg/l

Acetone vapors were shown to be relatively toxic to two types insects and their eggs. The time to 50% lethality (LT50) was found to be 51.2 hr and 67.9 hr when the flour beetle (*Tribolium confusum*) and the flour moth (*Ephestia kuehniella*) were exposed to an airborne acetone concentration of 61.5 mg/m3. The LT50 values for the eggs were 30-50% lower than for the adult. The direct application of acetone liquid to the body of the insects or surface of the eggs did not, however, cause any mortality.

The ability of acetone to inhibit cell multiplication has been examined in a wide variety of microorganisms. The results have generally indicated mild to minimal toxicity with NOECs greater than 1700 mg/L for exposures lasting from 6 hr to 4 days. Longer exposure periods of 7 to 8 days with bacteria produced mixed results; but overall the data indicate a low degree of toxicity for acetone. The only exception to these findings were the results obtained with the flagellated protozoa (*Entosiphon sulcatum*) which yielded a 3-day NOEC of 28 mg/L.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
acetone	LOW (Half-life = 14 days)	MEDIUM (Half-life = 116.25 days)
n-heptane	LOW	LOW
Carbon Dioxide, Liquefied, Under Pressure	LOW	LOW
benzene	HIGH (Half-life = 720 days)	LOW (Half-life = 20.88 days)

Bioaccumulative potential

Ingredient	Bioaccumulation
acetone	LOW (BCF = 0.69)
n-heptane	HIGH (LogKOW = 4.66)
Carbon Dioxide, Liquefied, Under Pressure	LOW (LogKOW = 0.83)
benzene	HIGH (BCF = 4360)

Mobility in soil

Ingredient	Mobility
acetone	HIGH (KOC = 1.981)

Ingredient	Mobility
n-heptane	LOW (KOC = 274.7)
Carbon Dioxide, Liquefied, Under Pressure	HIGH (KOC = 1.498)
benzene	LOW (KOC = 165.5)

SECTION 13 Disposal considerations

Waste treatment methods	
Product / Packaging disposal	 DO NOT allow wash water from cleaning or process equipment to enter drains. It may be necessary to collect all wash water for treatment before disposal. In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. Where in doubt contact the responsible authority. Consult State Land Waste Management Authority for disposal. Discharge contents of damaged aerosol cans at an approved site. Allow small quantities to evaporate. DO NOT incinerate or puncture aerosol cans. Bury residues and emptied aerosol cans at an approved site.

SECTION 14 Transport information

Labels Required Varine Pollutant NO

Land transport (DOT)

UN number	1950
UN proper shipping name	Aerosols, flammable, (each not exceeding 1 L capacity)
Transport hazard class(es)	Class 2.1 Subrisk Not Applicable
Packing group	Not Applicable
Environmental hazard	Not Applicable
Special precautions for user	Hazard Label2.1Special provisionsN82

Air transport (ICAO-IATA / DGR)

UN number	1950			
UN proper shipping name	Aerosols, flammable	Aerosols, flammable		
Transport hazard class(es)	ICAO/IATA Class ICAO / IATA Subrisk ERG Code	2.1 Not Applicable 10L		
Packing group	Not Applicable			
Environmental hazard	Not Applicable			
Special precautions for user	Special provisions Cargo Only Packing In Cargo Only Maximum Passenger and Cargo Passenger and Cargo Passenger and Cargo Passenger and Cargo	astructions Qty / Pack Packing Instructions Maximum Qty / Pack Limited Quantity Packing Instructions Limited Maximum Qty / Pack	A145 A167 A802 203 150 kg 203 75 kg Y203 30 kg G	

Sea transport (IMDG-Code / GGVSee)

UN number	1950
UN proper shipping name	AEROSOLS

Transport hazard class(es)	IMDG Class 2 IMDG Subrisk 1	Not Applicable	
Packing group	Not Applicable		
Environmental hazard	Not Applicable		
Special precautions for user	EMS Number Special provisions Limited Quantities	F-D, S-U 63 190 277 327 344 381 959 1000 ml	

Transport in bulk according to Annex II of MARPOL and the IBC code Not Applicable

Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

Product name	Group
acetone	Not Available
heptane, branched, cyclic	Not Available
n-heptane	Not Available
Carbon Dioxide, Liquefied, Under Pressure	Not Available
benzene	Not Available

Transport in bulk in accordance with the ICG Code

Product name	Ship Type
acetone	Not Available
heptane, branched, cyclic	Not Available
n-heptane	Not Available
Carbon Dioxide, Liquefied, Under Pressure	Not Available
benzene	Not Available

SECTION 15 Regulatory information

Safety, health and environmental regulations / legislation specific for the substance or mixture

acetone is found on the following regulatory lists

LIC Massachusette	Disk Tallas		
IIS - Massachusens -	RIGHT TO KNOV	M LISTER Unemicals	

US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs) US OSHA Permissible Exposure Limits (PELs) Table Z-1 US DOE Temporary Emergency Exposure Limits (TEELs) US Drug Enforcement Administration (DEA) List I and II Regulated Chemicals US EPA Integrated Risk Information System (IRIS) US TSCA Section 4/12 (b) - Sunset Dates/Status

heptane, branched, cyclic is found on the following regulatory lists

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

n-heptane is found on the following regulatory lists

- US Massachusetts Right To Know Listed Chemicals
- US DOE Temporary Emergency Exposure Limits (TEELs)
- US EPA Integrated Risk Information System (IRIS)
- US NIOSH Recommended Exposure Limits (RELs)

Carbon Dioxide, Liquefied, Under Pressure is found on the following regulatory lists

- FEI Equine Prohibited Substances List Controlled Medication
- FEI Equine Prohibited Substances List (EPSL)
- US Massachusetts Right To Know Listed Chemicals
- US NIOSH Recommended Exposure Limits (RELs)

US NIOSH Recommended Exposure Limits (RELs) US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory US TSCA Chemical Substance Inventory - Interim List of Active Substances

US TSCA Chemical Substance Inventory - Interim List of Active Substances

US OSHA Permissible Exposure Limits (PELs) Table Z-1 US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory US TSCA Chemical Substance Inventory - Interim List of Active Substances US TSCA Section 4/12 (b) - Sunset Dates/Status

US OSHA Permissible Exposure Limits (PELs) Table Z-1 US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory US TSCA Chemical Substance Inventory - Interim List of Active Substances

benzene is found on the following regulatory lists

Chemical Footprint Project - Chemicals of High Concern List	US CWA (Clean Water Act) - Toxic Pollutants
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC	US DOE Temporary Emergency Exposure Limits (TEELs)
Monographs	US EPA Carcinogens Listing
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC	US EPA Drinking Water Treatability Database
Monographs - Group 1: Carcinogenic to humans	US EPA Integrated Risk Information System (IRIS)
US - California Hazardous Air Pollutants Identified as Toxic Air Contaminants	US EPCRA Section 313 Chemical List
US - California Proposition 65 - Carcinogens	US National Toxicology Program (NTP) 15th Report Part A Known to be Human
US - California Proposition 65 - Maximum Allowable Dose Levels (MADLs) for	Carcinogens
Chemicals Causing Reproductive Toxicity``	US NIOSH Carcinogen List
US - California Proposition 65 - No Significant Risk Levels (NSRLs) for Carcinogens	US NIOSH Recommended Exposure Limits (RELs)
US - California Proposition 65 - Reproductive Toxicity	US OSHA Carcinogens Listing
US - California Safe Drinking Water and Toxic Enforcement Act of 1986 - Proposition 65	US OSHA Permissible Exposure Limits (PELs) Table Z-1
List	US OSHA Permissible Exposure Limits (PELs) Table Z-2
US - California Substances Identified As Toxic Air Contaminants	US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US - Massachusetts - Right To Know Listed Chemicals	US TSCA Chemical Substance Inventory - Interim List of Active Substances
US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)	
US Clean Air Act - Hazardous Air Pollutants	
US CWA (Clean Water Act) - List of Hazardous Substances	

Federal Regulations

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Section 311/312 hazard categories

US CWA (Clean Water Act) - Priority Pollutants

Flammable (Gases, Aerosols, Liquids, or Solids)	Yes
Gas under pressure	Yes
Explosive	No
Self-heating	No
Pyrophoric (Liquid or Solid)	No
Pyrophoric Gas	No
Corrosive to metal	No
Oxidizer (Liquid, Solid or Gas)	No
Organic Peroxide	No
Self-reactive	No
In contact with water emits flammable gas	No
Combustible Dust	No
Carcinogenicity	No
Acute toxicity (any route of exposure)	No
Reproductive toxicity	No
Skin Corrosion or Irritation	No
Respiratory or Skin Sensitization	No
Serious eye damage or eye irritation	Yes
Specific target organ toxicity (single or repeated exposure)	Yes
Aspiration Hazard	No
Germ cell mutagenicity	No
Simple Asphyxiant	No
Hazards Not Otherwise Classified	Yes

US. EPA CERCLA Hazardous Substances and Reportable Quantities (40 CFR 302.4)

Name	Reportable Quantity in Pounds (Ib)	Reportable Quantity in kg
acetone	5000	2270
benzene	10	4.54

State Regulations

US. California Proposition 65

WARNING: This product can expose you to chemicals including benzene, which is known to the State of California to cause cancer, and benzene, which is known to the State of California to cause birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

National Inventory Status

National Inventory	Status	
Australia - AIIC / Australia Non-Industrial Use	No (heptane, branched, cyclic)	
Canada - DSL	Yes	
Canada - NDSL	No (acetone; heptane, branched, cyclic; n-heptane; Carbon Dioxide, Liquefied, Under Pressure; benzene)	
China - IECSC	No (heptane, branched, cyclic)	
Europe - EINEC / ELINCS / NLP	No (heptane, branched, cyclic)	
Japan - ENCS	Yes	

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Mopar Air Intake & Throttle Body Cleaner (Aerosol)

National Inventory	Status		
Korea - KECI	Yes		
New Zealand - NZIoC	Yes		
Philippines - PICCS	Yes		
USA - TSCA	Yes		
Taiwan - TCSI	Yes		
Mexico - INSQ	No (heptane, branched, cyclic)		
Vietnam - NCI	Yes		
Russia - FBEPH	No (heptane, branched, cyclic)		
Legend:	Yes = All CAS declared ingredients are on the inventory No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.		

SECTION 16 Other information

Revision Date	10/12/2022
Initial Date	07/31/2022
initial Date	0110112022

SDS Version Summary

Version	Date of Update	Sections Updated
4.8	10/12/2022	Fire Fighter (fire/explosion hazard), Ingredients, Name

Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

Definitions and abbreviations

PC-TWA: Permissible Concentration-Time Weighted Average PC-STEL: Permissible Concentration-Short Term Exposure Limit IARC: International Agency for Research on Cancer ACGIH: American Conference of Governmental Industrial Hygienists STEL: Short Term Exposure Limit TEEL: Temporary Emergency Exposure Limit。 IDLH: Immediately Dangerous to Life or Health Concentrations ES: Exposure Standard OSF: Odour Safety Factor NOAEL :No Observed Adverse Effect Level LOAEL: Lowest Observed Adverse Effect Level TLV: Threshold Limit Value LOD: Limit Of Detection OTV: Odour Threshold Value BCF: BioConcentration Factors BEI: Biological Exposure Index AIIC: Australian Inventory of Industrial Chemicals DSL: Domestic Substances List NDSL: Non-Domestic Substances List IECSC: Inventory of Existing Chemical Substance in China EINECS: European INventory of Existing Commercial chemical Substances ELINCS: European List of Notified Chemical Substances NLP: No-Longer Polymers ENCS: Existing and New Chemical Substances Inventory KECI: Korea Existing Chemicals Inventory NZIoC: New Zealand Inventory of Chemicals PICCS: Philippine Inventory of Chemicals and Chemical Substances TSCA: Toxic Substances Control Act TCSI: Taiwan Chemical Substance Inventory INSQ: Inventario Nacional de Sustancias Químicas NCI: National Chemical Inventory FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances

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