

2. Hazards identification

Target organs : Contains material which causes damage to the following organs: kidneys, liver, upper respiratory tract, skin, central nervous system (CNS), eye, lens or cornea.

Over-exposure signs/symptoms

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing

Ingestion : Adverse symptoms may include the following:
nausea or vomiting

Skin : Adverse symptoms may include the following:
irritation
redness

Eyes : No specific data.

Medical conditions aggravated by over-exposure : Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (section 11)

3. Composition/information on ingredients

<u>Name</u>	<u>CAS number</u>	<u>%</u>
toluene	108-88-3	30 - 60
solvent naphtha (petroleum), heavy arom.	64742-94-5	15 - 30
naphthalenesulfonic acid, dinonyl-	25322-17-2	10 - 14.99
isopropanol	67-63-0	1 - 4.99
naphthalene	91-20-3	0.1 - <1

4. First aid measures

Eye contact : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.

Inhalation : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Ingestion : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

5. Fire-fighting measures

Flammability of the product : May be combustible at high temperature.

Products of combustion : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
sulfur oxides

Extinguishing media

Suitable : Use dry chemical, CO₂, water spray (fog) or foam.

Not suitable : Do not use water jet.

Special exposure hazards : Flammable liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Runoff to sewer may create fire or explosion hazard.

5 . Fire-fighting measures

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters

- : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6 . Accidental release measures

Personal precautions

- : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).

Environmental precautions

- : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods for cleaning up

- : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7 . Handling and storage

Handling

- : Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Avoid exposure during pregnancy. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage

- : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8 . Exposure controls/personal protection

Product name

toluene

Exposure limits

OSHA PEL 1989 (United States, 3/1989).

TWA: 100 ppm, 0 times per shift, 8 hour(s).

TWA: 375 mg/m³, 0 times per shift, 8 hour(s).

STEL: 150 ppm, 0 times per shift, 15 minute(s).

STEL: 560 mg/m³, 0 times per shift, 15 minute(s).

OSHA PEL Z2 (United States, 11/2006).

TWA: 200 ppm, 0 times per shift, 8 hour(s).

CEIL: 300 ppm, 0 times per shift, 0 hour(s).

AMP: 500 ppm, 0 times per shift, 10 minute(s).

8 . Exposure controls/personal protection

isopropanol

NIOSH REL (United States, 12/2001).

TWA: 100 ppm, 0 times per shift, 10 hour(s).
 TWA: 375 mg/m³, 0 times per shift, 10 hour(s).
 STEL: 150 ppm, 0 times per shift, 15 minute(s).
 STEL: 560 mg/m³, 0 times per shift, 15 minute(s).

ACGIH TLV (United States, 1/2007).

TWA: 20 ppm, 0 times per shift, 8 hour(s).

ACGIH TLV (United States, 1/2007).

TWA: 200 ppm, 0 times per shift, 8 hour(s).
 STEL: 400 ppm, 0 times per shift, 15 minute(s).

OSHA PEL 1989 (United States, 3/1989).

TWA: 400 ppm, 0 times per shift, 8 hour(s).
 TWA: 980 mg/m³, 0 times per shift, 8 hour(s).
 STEL: 500 ppm, 0 times per shift, 15 minute(s).
 STEL: 1225 mg/m³, 0 times per shift, 15 minute(s).

NIOSH REL (United States, 12/2001).

TWA: 400 ppm, 0 times per shift, 10 hour(s).
 TWA: 980 mg/m³, 0 times per shift, 10 hour(s).
 STEL: 500 ppm, 0 times per shift, 15 minute(s).
 STEL: 1225 mg/m³, 0 times per shift, 15 minute(s).

OSHA PEL (United States, 11/2006).

TWA: 400 ppm, 0 times per shift, 8 hour(s).
 TWA: 980 mg/m³, 0 times per shift, 8 hour(s).

naphthalene

ACGIH TLV (United States, 1/2007).

TWA: 10 ppm, 0 times per shift, 8 hour(s).
 TWA: 52 mg/m³, 0 times per shift, 8 hour(s).
 STEL: 15 ppm, 0 times per shift, 15 minute(s).
 STEL: 79 mg/m³, 0 times per shift, 15 minute(s).

OSHA PEL 1989 (United States, 3/1989).

TWA: 10 ppm, 0 times per shift, 8 hour(s).
 TWA: 50 mg/m³, 0 times per shift, 8 hour(s).
 STEL: 15 ppm, 0 times per shift, 15 minute(s).
 STEL: 75 mg/m³, 0 times per shift, 15 minute(s).

NIOSH REL (United States, 12/2001).

TWA: 10 ppm, 0 times per shift, 10 hour(s).
 TWA: 50 mg/m³, 0 times per shift, 10 hour(s).
 STEL: 15 ppm, 0 times per shift, 15 minute(s).
 STEL: 75 mg/m³, 0 times per shift, 15 minute(s).

OSHA PEL (United States, 11/2006).

TWA: 10 ppm, 0 times per shift, 8 hour(s).
 TWA: 50 mg/m³, 0 times per shift, 8 hour(s).

Consult local authorities for acceptable exposure limits.

Engineering measures

- : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Personal protection

Eyes

- : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.
 Recommended: splash goggles

Skin

- : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory

- : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
 Recommended: full-face mask organic vapor filter (Type A)

8 . Exposure controls/personal protection

- Hands** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
 >8 hours (breakthrough time): Viton
 <1 hours (breakthrough time): nitrile rubber , polyvinyl alcohol (PVA)
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

9 . Physical and chemical properties

- Physical state** : Liquid. [Clear.]
- Flash point** : Closed cup: 6°C (42.8°F) [Pensky-Martens. ASTM D93]
- Auto-ignition temperature** : Lowest known value: 399°C (750.2°F) (isopropanol).
- Flammable limits** : Greatest known range: Lower: 2.3% Upper: 12.7% (isopropanol)
- Color** : Amber. [Dark]
- Odor** : Aromatic.
- Boiling/condensation point** : 90°C (194°F)
- Melting/freezing point** : May start to solidify at the following temperature: <-20°C (-4°F) This is based on data for the following ingredient: solvent naphtha (petroleum), heavy arom.. Weighted average: -71.66°C (-97°F)
- Density** : 0.92 g/cm³ [15°C (59°F)]
- Specific gravity** : 0.92
- Vapor pressure** : <6.2 kPa (<46.5 mm Hg) (at 20°C)
- Vapor density** : Highest known value: 4.6 to 5.5 (Air = 1) (solvent naphtha (petroleum), heavy arom.). Weighted average: 3.71 (Air = 1)
- Odor threshold** : Lowest known value: 1.74 ppm (toluene)
- Evaporation rate** : Highest known value: 2 (toluene) Weighted average: 1.37 compared with Butyl acetate.
- Viscosity** : Dynamic: >7 mPa·s (>7 cP)
 Kinematic: >0.07 cm²/s (>7 cSt)
 Kinematic (40°C): 0.069 cm²/s (6.9 cSt)
- Dispersibility properties** : Not dispersible in the following materials: cold water.
- Solubility** : Partially soluble in the following materials: cold water and hot water.

10 . Stability and reactivity

- Stability and reactivity** : The product is stable.
- Incompatibility with various substances** : Highly reactive or incompatible with the following materials: oxidizing materials.
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
- Hazardous polymerization** : Under normal conditions of storage and use, hazardous polymerization will not occur.
- Conditions of reactivity** : Flammable in the presence of the following materials or conditions: open flames, sparks and static discharge.

11 . Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
toluene	LD50 Dermal	Rabbit	14100 uL/kg	-
	LD50 Oral	Rat	636 mg/kg	-
	LC50 Inhalation	Rat	26700 ppm	1 hours
	Vapor			
solvent naphtha (petroleum), heavy arom.	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	>2000 mg/kg	-
isopropanol	LD50 Dermal	Rabbit	12800 mg/kg	-
	LD50 Oral	Rat	5000 mg/kg	-
naphthalene	LD50 Dermal	Rat	>2500 mg/kg	-

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LD50 Oral	Rat	490 mg/kg	-
LC50 Inhalation Vapor	Rat	>340 mg/m ³	1 hours

Conclusion/Summary : Not available.

Chronic toxicity

Conclusion/Summary : Not available.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Stadis (R) 450	Skin - Primary dermal irritation index (PDII)	Rabbit	1.9	4 hours 0.5 ml	21 days

Conclusion/Summary

Skin : Slightly irritating to the skin.

Eyes : Severely irritating to eyes.

Respiratory : May cause respiratory irritation.

Sensitizer

Conclusion/Summary

Skin : Sensitizing properties of the product: Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
toluene	A4	3	-	-	-	-
isopropanol	A4	3	-	-	-	-
naphthalene	A4	2B	-	-	Possible	-

Mutagenicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Possible risk of harm to the unborn child.

12 . Ecological information

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Aquatic ecotoxicity

Product/ingredient name	Test	Result	Species	Exposure
toluene	-	Acute EC50 6 mg/L	Daphnia - Daphnia magna	48 hours
	-	Acute LC50 5.8 mg/L	Fish - Oncorhynchus mykiss	96 hours
	-	Acute LC50 12.6 mg/L	Fish - Pimephales promelas	96 hours
solvent naphtha (petroleum), heavy arom.	-	Acute EC50 3 to 10 mg/l	Daphnia	48 hours
	-	Acute EC50 1 to 3 mg/l	Algae	72 hours
	-	Acute LC50 2 to 5 mg/l	Fish	96 hours
isopropanol	-	Acute LC50 6550 mg/L	Fish - Pimephales promelas	96 hours
	-	Acute LC50 10400000 to 10600000 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas	96 hours

12 . Ecological information

	-	Acute LC50 9640000 to 10000000 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas	96 hours
naphthalene	-	Acute EC50 1.96 mg/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	-	Acute LC50 1.8 mg/L	Fish - Oncorhynchus mykiss	96 hours
Stadis (R) 450	-	Acute LC50 12 mg/L	Fish - Minnows	96 hours

Conclusion/Summary : Not available.

Biodegradability

Conclusion/Summary : Not available.

Other adverse effects : No known significant effects or critical hazards.

13 . Disposal considerations


Waste disposal : The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14 . Transport information






Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
DOT Classification	UN1993	Flammable liquids, n.o.s. (toluene, isopropanol)	3	II		Limited quantity Yes. Packaging instruction Passenger aircraft Quantity limitation: 5 L Cargo aircraft Quantity limitation: 60 L Special provisions IB2, T7, TP1, TP8, TP28

This Material Safety Data Sheet conforms to the requirements of ANSI Z400.1.

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14 . Transport information

TDG Classification	UN1993	FLAMMABLE LIQUID, N.O.S. (toluene, isopropanol)	3	II		<u>Explosive Limit and Limited Quantity Index</u> 1 <u>Passenger Carrying Road or Rail Index</u> 5 <u>Special provisions</u> 16
Mexico Classification	UN1993	LIQUIDO INFLAMABLE, N.E.P. (toluene, isopropanol)	3	II		<u>Special provisions</u> 274
ADR/RID Class	UN1993	FLAMMABLE LIQUID, N.O.S. (toluene, isopropanol)	3	II		<u>Hazard identification number</u> 33 <u>Limited quantity</u> LQ4 <u>CEPIC Tremcard</u> 30GF1-I+II
IMDG Class	UN1993	FLAMMABLE LIQUID, N.O.S. (toluene, isopropanol)	3	II		<u>Emergency schedules (EmS)</u> F-E, _S-E_
IATA-DGR Class	UN1993	Flammable liquid, n.o.s. (toluene, isopropanol)	3	II		<u>Passenger and Cargo Aircraft</u> Quantity limitation: 5 L <u>Cargo Aircraft Only</u> Quantity limitation: 60 L <u>Limited Quantities - Passenger Aircraft</u> Quantity limitation: 1 L

PG* : Packing group

Reportable quantity : CERCLA: Hazardous substances.: toluene: 1000 lbs. (454 kg); naphthalene: 100 lbs. (45.4 kg); methanol: 5000 lbs. (2270 kg); benzene: 10 lbs. (4.54 kg);

Flash point : Closed cup: 6°C (42.8°F) [Pensky-Martens. ASTM D93]

15 . Regulatory information

United States

HCS Classification : Flammable liquid
Irritating material
Carcinogen
Target organ effects

U.S. Federal regulations : TSCA 4(a) final test rules: naphthalene
TSCA 8(a) PAIR: naphthalene
United States inventory (TSCA 8b): All components are listed or exempted.
TSCA 12(b) one-time export: naphthalene
Made in the USA

SARA 302/304/311/312 extremely hazardous substances: No products were found.

SARA 302/304 emergency planning and notification: No products were found.

SARA 302/304/311/312 hazardous chemicals: toluene; isopropanol

SARA 311/312 MSDS distribution - chemical inventory - hazard identification:
toluene: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard;
isopropanol: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard

15 . Regulatory information

Clean Water Act (CWA) 307: toluene; naphthalene; benzene

Clean Water Act (CWA) 311: toluene; naphthalene; benzene

Clean Air Act (CAA) 112 accidental release prevention: No products were found.

Clean Air Act (CAA) 112 regulated flammable substances: No products were found.

Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

SARA 313

Form R - Reporting requirements	:	<u>Product name</u>	<u>CAS number</u>	<u>Concentration</u>	
		toluene	108-88-3	30 - 60	
		isopropanol	67-63-0	0.99 - 4.99	
		naphthalene	91-20-3	0.09 - 0.99	
Supplier notification	:	toluene	108-88-3	30 - 60	
		isopropanol	67-63-0	0.99 - 4.99	
		naphthalene	91-20-3	0.09 - 0.99	
State regulations	:	WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.			
<u>Ingredient name</u>		<u>Cancer</u>	<u>Reproductive</u>	<u>No significant risk level</u>	<u>Maximum acceptable dosage level</u>
toluene		No.	Yes.	No.	7000 µg/day (ingestion) 13000 µg/day (inhalation)
naphthalene		Yes.	No.	Yes.	No.
benzene		Yes.	Yes.	6.4 µg/day (ingestion) 13 µg/day (inhalation)	24 µg/day (ingestion) 49 µg/day (inhalation)

Canada

WHMIS (Canada)

- : Class B-2: Flammable liquid
- Class D-2A: Material causing other toxic effects (Very toxic).
- Class D-2B: Material causing other toxic effects (Toxic).
- Class E: Corrosive material

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

EU regulations

Hazard symbol or symbols :



Risk phrases

- : R11- Highly flammable.
- R63- Possible risk of harm to the unborn child.
- R48/20- Harmful: danger of serious damage to health by prolonged exposure through inhalation.
- R65- Harmful: may cause lung damage if swallowed.
- R41- Risk of serious damage to eyes.
- R66- Repeated exposure may cause skin dryness or cracking.
- R67- Vapors may cause drowsiness and dizziness.
- R52/53- Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety phrases

- : S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- S36/37/39- Wear suitable protective clothing, gloves and eye/face protection.

16 . Other information

Label requirements : FLAMMABLE LIQUID AND VAPOR. CAUSES RESPIRATORY TRACT AND SKIN IRRITATION. HARMFUL OR FATAL IF SWALLOWED. CAN ENTER LUNGS AND CAUSE DAMAGE. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE. SUSPECT CANCER HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE CANCER. DEVELOPMENTAL HAZARD - CONTAINS MATERIAL WHICH CAN CAUSE ADVERSE DEVELOPMENTAL EFFECTS.
Made in the USA

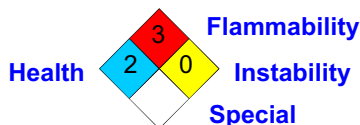
Hazardous Material Information System (U.S.A.) :

Health	*	2
Flammability		3
Physical hazards		0

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.) :



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Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.