



Safety Data Sheet

Section 1. Identification

Product name : ALPHA® Telecore™ Plus Flux Solder Wire Cored 96.5Sn/3.0Ag/0.5Cu (SAC305) Alloy

Product code : M771TELE+

Product type : Solid.

Date of issue/Date of revision : January 26 2020.

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Section 2. Hazards identification

Classification of the substance or mixture : Not classified.

GHS label elements

Signal word : No signal word.

Hazard statements : No known significant effects or critical hazards.

Precautionary statements

Prevention : Do not eat, drink or smoke when using this product.

Response : Get medical attention if you feel unwell.

Storage : Store in cool/well-ventilated place. Keep container tightly closed.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Other hazards which do not result in classification : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	%	CAS number
tin	80-100	7440-31-5
silver	1-10	7440-22-4
Proprietary Rosin/Resin	1-10	-

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

Ingestion : Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

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Section 4. First aid measures

Eye contact	: No specific data.
Inhalation	: No specific data.
Skin contact	: No specific data.
Ingestion	: No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician	: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	: No specific treatment.
Protection of first-aiders	: No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media	: Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	: None known.

Specific hazards arising from the chemical	: No specific fire or explosion hazard.
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Hazardous thermal decomposition products	: Decomposition products may include the following materials: metal oxide/oxides
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Special protective actions for fire-fighters	: 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.
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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.
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Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	: 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. Put on appropriate personal protective equipment.
For emergency responders	: If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

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).
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Methods and materials for containment and cleaning up

Small spill	: Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.
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Section 6. Accidental release measures

- Large spill** : Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8).
- Advice on general occupational hygiene** : 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. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. 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. 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. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
tin	ACGIH TLV (United States, 3/2017). TWA: 2 mg/m ³ , (as Sn) 8 hours. ACGIH TLV (United States, 3/2017). Notes: Substances for which the TLV is higher than the OSHA Permissible Exposure Limit (PEL) and/or the NIOSH Recommended Exposure Limit (REL). See CFR 58(124) :36338-33351, June 30, 1993, for revised OSHA PEL. TWA: 0.1 mg/m ³ 8 hours. Form: Dust and fumes
silver	

Ingredient name	Exposure limits
tin	TW Minstry of Labor, labor permissible workplace exposure standards, allowable concentration (Taiwan, 6/2014). Notes: as Sn STEL: 4 mg/m ³ , (as Sn) 15 minutes. TWA: 2 mg/m ³ , (as Sn) 8 hours. TW Minstry of Labor, labor permissible workplace exposure standards, allowable concentration (Taiwan, 6/2014). Notes: as Ag STEL: 0.03 mg/m ³ , (as Ag) 15 minutes. Form: Dust and fumes TWA: 0.01 mg/m ³ , (as Ag) 8 hours. Form: Dust and fumes
silver	

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Section 8. Exposure controls/personal protection

Ingredient name	Exposure limits
tin silver	ACGIH TLV (United States, 3/2017). TWA: 2 mg/m ³ , (as Sn) 8 hours. ACGIH TLV (United States, 3/2017). Notes: Substances for which the TLV is higher than the OSHA Permissible Exposure Limit (PEL) and/or the NIOSH Recommended Exposure Limit (REL). See CFR 58(124) :36338-33351, June 30, 1993, for revised OSHA PEL. TWA: 0.1 mg/m ³ 8 hours. Form: Dust and fumes
Ingredient name	Exposure limits
tin silver	Ministry of Employment and Labor (Republic of Korea, 8/2016). TWA: 2 mg/m ³ 8 hours. Ministry of Employment and Labor (Republic of Korea, 8/2016). TWA: 0.1 mg/m ³ 8 hours.
Ingredient name	Exposure limits
tin silver	DOSH USECHH (Malaysia, 4/2000). TWA: 2 mg/m ³ 8 hours. DOSH USECHH (Malaysia, 4/2000). TWA: 0.1 mg/m ³ 8 hours.
Ingredient name	Exposure limits
tin silver	Workplace Safety and Health Act (Singapore, 2/2006). PEL (long term): 2 mg/m ³ 8 hours. Workplace Safety and Health Act (Singapore, 2/2006). PEL (long term): 0.1 mg/m ³ 8 hours.

Appropriate engineering controls

: Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls

: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

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.

Eye/face protection

: 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. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

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Section 8. Exposure controls/personal protection

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| Hand protection | : 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. |
| Body protection | : 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. |
| Other skin protection | : Appropriate footwear and any additional skin protection measures 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 protection | : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. |

Section 9. Physical and chemical properties

Appearance

- | | |
|---|---|
| Physical state | : Solid. |
| Color | : Gray. |
| Odor | : None. |
| Odor threshold | : Not available. |
| pH | : Not available. |
| Melting point | : Not available. |
| Boiling point | : Not available. |
| Flash point | : Not available. |
| Evaporation rate | : Not available. |
| Flammability (solid, gas) | : Not available. |
| Lower and upper explosive (flammable) limits | : Not available. |
| Vapor pressure | : Not available. |
| Vapor density | : Not available. |
| Relative density | : Not available. |
| Solubility | : Insoluble in the following materials: cold water and hot water. |
| VOC | 30 g/l |
| Partition coefficient: n-octanol/water | : Not available. |
| Auto-ignition temperature | : Not available. |
| Decomposition temperature | : Not available. |
| Viscosity | : Not available. |

Section 10. Stability and reactivity

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|---|--|
| Reactivity | : No specific test data related to reactivity available for this product or its ingredients. |
| Chemical stability | : The product is stable. |
| Possibility of hazardous reactions | : Under normal conditions of storage and use, hazardous reactions will not occur. |
| Hazardous decomposition products | : Under normal conditions of storage and use, hazardous decomposition products should not be produced. |
| Other Hazardous decomposition products | : metal oxides, toxic. fumes |

Section 11. Toxicological information

Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
tin silver	LD50 Oral	Rat	>2000 mg/kg	-
	LD Oral	Guinea pig	>5 g/kg	-
	LD Oral	Mouse	>10 g/kg	-
	LD50 Oral	Mouse	100 mg/kg	-
Proprietary Rosin/Resin	LD50 Oral	Rat	>2000 mg/kg	-
	LD50 Dermal	Rabbit	>2.5 g/kg	-
	LD50 Oral	Mouse	>3 g/kg	-
	LD50 Oral	Rat	>4 g/kg	-

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

Eye contact : No known significant effects or critical hazards.
Inhalation : No known significant effects or critical hazards.
Skin contact : No known significant effects or critical hazards.
Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.
Inhalation : No specific data.
Skin contact : No specific data.
Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

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Section 11. Toxicological information

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Oral	91730.2 mg/kg
Dermal	91730.2 mg/kg

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
silver	Acute EC50 1.4 µg/l Marine water	Algae - Chroomonas sp.	4 days
	Acute EC50 0.0092 mg/l	Daphnia	48 hours
	Acute EC50 0.24 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 11 µg/l Fresh water	Crustaceans - Ceriodaphnia reticulata	48 hours
	Acute LC50 0.00213 mg/l	Fish	96 hours
	Acute LC50 0.00238 mg/l	Fish	96 hours
	Acute LC50 0.00276 mg/l	Fish	96 hours
	Acute LC50 0.00312 mg/l	Fish	96 hours
	Acute LC50 0.00342 mg/l	Fish	96 hours
	Chronic NOEC 5 mg/l Marine water	Algae - Glenodinium halli	72 hours
Proprietary Rosin/Resin	LC50 60.3 mg/l	Fish	96 hours

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
silver	-	70	low
Proprietary Rosin/Resin	3.42	-	low

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Section 12. Ecological information

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

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

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. 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. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	UN	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	No.	No.	No.
Additional information	-	-	-

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory information

Taiwan

SDS complies with the Regulation of Labeling and Hazard Communication of Hazardous Chemicals

List of chemicals reputed to be a "threat of imminent danger" : This product contains substances considered to be a "Threat of imminent danger": tin, silver.

OSHA Article 29 : None of the components are listed.

OSHA Article 30 : None of the components are listed.

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Section 15. Regulatory information

China

SDS complies with the General Rules for Classification and Hazardous Communication of Chemicals GB-13690-2009, GB-30000 series, and GB/T 16438-2008.

List of Goods banned for Importing

None of the components are listed.

Inventory of Hazardous Chemicals

None of the components are listed.

List of Goods banned for Exporting

None of the components are listed.

List of Toxic Chemicals Severely Restricted for Importing & Exporting by China

None of the components are listed.

Inventory of Highly Toxic Chemicals

None of the components are listed.

Catalogue of Hazardous Chemicals of Priority Management

None of the components are listed.

Catalogue of Priority Hazardous Chemicals for Environmental Management

None of the components are listed.

Other China Regulations

Catalogue of Hazardous Chemicals (2015)
Classification & code of dangerous goods (GB 6944-2012)
Production Safety Law of the People's Republic of China
Law of the People's Republic of China on Prevention and Control of Occupational Diseases
Environmental Protection Law of the People's Republic of China
Regulation on Work Safety Licenses
Classification of transportation packing type of dangerous goods GB/T 15098-2008
General rules for classification and hazardous communication of chemicals GB 13690-2009
List of Dangerous Goods GB12268-2012
Occupational Exposure Limits (OELs) for hazardous chemicals GBZ 2.1-2007
Hazardous Chemicals Safety Management Ordinance China (2013 revised)
Safety data sheet for chemical products: content & order of sections GB/T 16483-2008
Rules for classification and labelling of chemicals GB30000-2013
Guidance on the compilation of safety data sheet for chemical products GB/T 17519-2013

Republic of Korea

A. Regulation according to ISHA

ISHA article 37 : None of the components are listed.
(Harmful substances prohibited from manufacture)

ISHA article 38 : None of the components are listed.
(Harmful substances requiring permission)

Article 2 of Youth Protection Act on Substances Hazardous to Youth : Not applicable.

Exposure Limits of Chemical Substances and Physical Factors

The following components have an OEL:
Tin
silver

Section 15. Regulatory information

ISHA Enforcement Regs : None of the components are listed.

Annex 11-3 (Exposure standards established for harmful factors)

ISHA Enforcement Regs : The following components are listed: Tin, metal; Silver, metal

Annex 11-4 (Harmful factors subject to Work Environment Measurement)

ISHA Enforcement Regs : The following components are listed: Tin and compounds

Annex 12-2 (Harmful Factors Subject to Special Health Check-up)

Standard of Industrial Safety and Health : The following components are listed: Tin and its compounds; Silver and its compounds

Annex 12 (Hazardous substances subject to control)

B. Regulation according to Chemicals Control Act

K-Reach Article 20 (Toxic chemicals) : Not applicable

K-Reach Article 27 (Prohibited) : None of the components are listed.

K-Reach Article 27 (Restricted) : None of the components are listed.

Existing Chemical Substances Subject to Registration : None of the components are listed.

CSCA Article 11 (TRI) : The following components are listed: Tin and its compounds; Silver and its compounds

CSCA Article 39 (Accident Precaution Chemicals) : None of the components are listed.

C. Dangerous Materials Safety Management Act : Not available.

D. Wastes regulation : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Singapore - hazardous chemicals under government control

None.

Japan

Fire Service Law

Category	Substance name/Type	Danger category	Signal word	Designated quantity
Category II	Material that contains: Metal powder.	Not available.	Not available.	Not available.
Category IV	Material that contains: Class III petroleum	III	Flammable - Keep Fire Away	2000 L

Fire Service Law - Obstructive materials : Not listed

Designated combustibles : Not available.

Designated quantity : Not available.

Maritime Safety Law

Notification Regulating Transportation of Dangerous Materials by Sea

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Section 15. Regulatory information

None of the components are listed.

Container class

None of the components are listed.

ISHL

Use of specified chemical substances

None of the components are listed.

Label requirements

<u>Ingredient name</u>	<u>%</u>	<u>Status</u>
Tin and its compounds	≥90	Listed
Silver and its compounds (water-soluble)	≤3.0	Listed

Chemicals requiring notification

<u>Ingredient name</u>	<u>%</u>	<u>Status</u>
Tin and its compounds	≥90	Listed
Silver and its compounds (water-soluble)	≤3.0	Listed
Copper and its compounds	<1.0	Listed

Carcinogen

None of the components are listed.

Mutagen

None of the components are listed.

Corrosive liquid : Not listed
ISHL Appendix 1 : Not available.
Lead regulation : Not listed
Prevention of Tetraalkyl Lead Poisoning : Not listed
Harmful Substances Subject to Obtaining Permission for Manufacturing : Not listed
Harmful Substances, Prohibited for Manufacturing : Not listed
Dangerous Substances : Combustible

Organic solvents poisoning prevention : Not available.

Chemical Substances Control Law (CSCL)

None of the components are listed.

Poisonous and Deleterious Substances

None of the components are listed.

Pollutant Release and Transfer Registers (PRTR)

<u>Ingredient name</u>	<u>%</u>	<u>Status</u>	
silver and its water-soluble compounds	2.9	Class 1	

JSOH Carcinogen : Not listed

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Section 15. Regulatory information

**Law Concerning Prevention
of Pollution of the Ocean
and Maritime Disaster** : Not available.

Road law : Not available.

**List of Specially Controlled
Industrial Waste** : Not listed

**Occupational Safety and
Health Law** : Not available.

Explosives Control Law

None of the components are listed.

**High Pressure Gas Control
Law** : Not available.

**Safety, health and
environmental regulations
specific for the product** : No known specific national and/or regional regulations applicable to this product
(including its ingredients).

International lists

National inventory

Australia : Not determined.

Canada : Not determined.

China : All components are listed or exempted.

Europe : All components are listed or exempted.

Japan : All components are listed or exempted.

Malaysia : Not determined.

New Zealand : Not determined.

Philippines : Not determined.

Republic of Korea : All components are listed or exempted.

Taiwan : All components are listed or exempted.

Thailand : Not determined.

Turkey : Not determined.

United States : All components are listed or exempted.

Viet Nam : Not determined.

Section 16. Other information

History

**Date of issue/Date of
revision** : January 26 2020.

Date of previous issue : June 13 2019.

Version : 2.02

Prepared by : **Regulatory Affairs Department**
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Section 16. Other information

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships,
1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

Procedure used to derive the classification

Classification	Justification
Not classified.	

References : Not available.

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.