SAFETY DATA SHEET



CW7100 CircuitWorks® Conductive Grease

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name : CW7100 CircuitWorks® Conductive Grease

Product code : CW7100

Product description: Conductive agents

Product type : Liquid.

Other means of identification

: Silver grease. Electric and electromechanical components - Conductive materials

1.2 Relevant identified uses of the substance or mixture and uses advised against

Not applicable.

1.3 Details of the supplier of the safety data sheet

Manufacturer Chemtronics 8125 Cobb Center Drive Kennesaw, GA 30152

Tel. 770-424-4888 or toll free 800-645-5244

Distributor

Importer
ITW Contamination Control BV Saffierlaan 5
VZ-2132 Hoofddorp
The Netherlands
Email: info@itw-cc.com

Tel: +31 88 1307 400 FAX: +31 88 1307 499

e-mail address of person responsible for this SDS

: askchemtronics@chemtronics.com

National contact

ITW Contamination Control BV Saffierlaan 5 VZ-2132 Hoofddorp The Netherlands

Email: info@itw-cc.com

Tel: +31 88 1307 400 FAX: +31 88 1307 499

1.4 Emergency telephone number

National advisory body/Poison Centre

Telephone number: EMERGENCY HEALTH INFORMATION:

Chemtrec - 1-800-424-9300 or collect 703-527-3887

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Supplier

Telephone number: Chemtronics Product Information: 800-TECH-401 (800-832-4401)

Chemtronics Customer Service: 800-645-5244

Chemtrec 800-424-9300

Hours of operation : Chemtrec - 1-800-424-9300 or collect 703-527-3887

For emergency responders

24/7

Information limitations : EMERGENCY HEALTH INFORMATION:

EMERGENCY SPILL INFORMATION:

Transport information

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Aquatic Acute 1, H400 Aquatic Chronic 1, H410

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

Ingredients of unknown

toxicity

: 100 percent of the mixture consists of component(s) of unknown toxicity

Ingredients of unknown

ecotoxicity

: Contains 30 % of components with unknown hazards to the aquatic environment

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms



Signal word : Warning

Hazard statements: Very toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention: Avoid release to the environment.

Response : Collect spillage.
Storage : Not applicable.

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

and international regulations.

Supplemental label

elements

articles

: FOR INDUSTRIAL USE ONLY

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and : Not applicable.

Special packaging requirements

Containers to be fitted with child-resistant

fastenings

: Not applicable.

CW7100 CircuitWorks® Conductive Grease

SECTION 2: Hazards identification

Tactile warning of danger : Not applicable.

2.3 Other hazards

Other hazards which do not result in classification

: None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures : Mixture

Product/ingredient name	Identifiers	%	Regulation (EC) No. 1272/2008 [CLP]	Туре
silver	EC: 231-131-3 CAS: 7440-22-4	≥50 - ≤75	Aquatic Acute 1, H400 (M=1000) Aquatic Chronic 1, H410 (M=1000)	[1] [2]
			See Section 16 for the full text of the H statements declared above.	

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, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

- [1] Substance classified with a health or environmental hazard
- [2] Substance with a workplace exposure limit
- [3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
- [4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
- [5] Substance of equivalent concern

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

SECTION 4: First aid measures

4.1 Description of 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. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Inhalation

: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact

: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion

: Wash out mouth with water. Remove dentures if any. 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. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Protection of first-aiders

: No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

SECTION 4: First aid measures

4.2 Most important symptoms and effects, both acute and delayed

Over-exposure signs/symptoms

Eye contact: Adverse symptoms may include the following:

pain or irritation

redness watering

Inhalation : No specific data.

Skin contact: Adverse symptoms may include the following:

irritation

Ingestion : Adverse symptoms may include the following:

argyria

Ingestion Seek medical attention.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large

quantities have been ingested or inhaled.

Specific treatments: No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing

media

: Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing

media

: None known.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture

: In a fire or if heated, a pressure increase will occur and the container may burst. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous combustion

products

: Decomposition products may include the following materials:

metal oxide/oxides

5.3 Advice for firefighters

Special protective actions for fire-fighters

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: 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.

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. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 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 spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders

: If specialised 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".

SECTION 6: Accidental release measures

6.2 Environmental precautions

: Avoid dispersal of spilt 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). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

6.3 Methods and material for containment and cleaning up

Small spill

: Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill

: Stop leak if without risk. Move containers from spill area. Approach the 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. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product.

6.4 Reference to other sections

: See Section 1 for emergency contact information. See Section 8 for information on appropriate personal protective equipment. See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

Protective measures

: Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Avoid release to the environment. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

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.

7.2 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 unlabelled containers. Use appropriate containment to avoid environmental contamination.

Seveso Directive - Reporting thresholds (in tonnes)

Danger criteria

	Notification and MAPP threshold	Safety report threshold
E1: Hazardous to the aquatic environment - Acute 1 or Chronic 1	100	200

7.3 Specific end use(s)

Recommendations: Not available.

SECTION 7: Handling and storage

Industrial sector specific

: Not available.

solutions

SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. Information is provided based on typical anticipated uses of the product. Additional measures might be required for bulk handling or other uses that could significantly increase worker exposure or environmental releases.

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
	EU OEL (Europe, 12/2009). Notes: list of indicative occupational exposure limit values TWA: 0.1 mg/m³ 8 hours.

Recommended monitoring procedures

: If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

No DNELs/DMELs available.

PNECs

No PNECs available

8.2 Exposure controls

Appropriate engineering controls

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

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 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. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

SECTION 8: Exposure controls/personal protection

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.

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.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state : Liquid.

Colour : Grey. [Light]

Odour : Not available.

Odour threshold : Not available.

PH : Not available.

Melting point/freezing point : Not available.

Initial boiling point and : Not available.

boiling range

Flash point : [Product does not sustain combustion.]

Evaporation rate : Not available.
Flammability (solid, gas) : Not available.
Upper/lower flammability or : Not available.

explosive limits

Vapour pressure: Not available.Vapour density: Not available.

Relative density : 2.5

Solubility(ies) : Not available.

Partition coefficient: n-octanol/ : Not available.

water

Auto-ignition temperature: Not available.Decomposition temperature: Not available.Viscosity: Not available.

Explosive properties : Non-explosive in the presence of the following materials or conditions: open

flames, sparks and static discharge, heat, shocks and mechanical impacts, oxidizing materials, reducing materials, combustible materials, organic materials,

metals, acids, alkalis and moisture.

Oxidising properties : Not available.

9.2 Other information

Solubility in water : Not available.

No additional information.

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SECTION 10: Stability and reactivity

10.1 Reactivity : No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability : The product is stable.

10.3 Possibility of hazardous reactions

: Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid : No specific data.

10.5 Incompatible materials: Reactive or incompatible with the following materials: Strong oxidizing materials

strong acids alkalis

10.6 Hazardous decomposition products

: Under normal conditions of storage and use, hazardous decomposition products

should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Conclusion/Summary: Not available.

Acute toxicity estimates

Not available.

Irritation/Corrosion

Conclusion/Summary: Not available.

Sensitisation

Conclusion/Summary: Not available.

Mutagenicity

Conclusion/Summary: Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary: Not available.

Teratogenicity

Conclusion/Summary: Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on likely routes :

: Not available.

of exposure

Potential acute health effects

Eye contact : May cause eye irritation.

Inhalation : No known significant effects or critical hazards.

Skin contact: May cause skin irritation.

Ingestion: Harmful if swallowed. Silver ingestion may result in generalized argyria.

SECTION 11: Toxicological information

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:

pain or irritation redness watering

Inhalation : No specific data.

Skin contact: Adverse symptoms may include the following:

irritation

Ingestion : Adverse symptoms may include the following:

argyria

Ingestion Seek medical attention.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

Potential immediate : Not available.

effects

Potential delayed effects: Not available.

Long term exposure

Potential immediate : N

effects

: Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

Conclusion/Summary: 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.

Other information : Not available.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
silver	Acute EC50 1.4 μg/l Marine water	Algae - Chroomonas sp.	4 days
	Acute EC50 0.24 μg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 4500 ppb Fresh water	Crustaceans - Gammarus pseudolimnaeus	48 hours
	Acute LC50 2.13 to 2.93 μg/l Fresh water	Fish - Pimephales promelas	96 hours
	Chronic NOEC 5 mg/l Marine water	Algae - Glenodinium halli	72 hours

Conclusion/Summary: Not available.

12.2 Persistence and degradability

Conclusion/Summary: Not available.

12.3 Bioaccumulative potential

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SECTION 12: Ecological information

Product/ingredient name	LogPow	BCF	Potential
silver	-	70	low

12.4 Mobility in soil

Soil/water partition

: Not available.

coefficient (Koc)

Mobility

: Not available.

12.5 Results of PBT and vPvB assessment

PBT : Not applicable.

vPvB : Not applicable.

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

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product

Methods of disposal

: The generation of waste should be avoided or minimised 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.

Hazardous waste

. . .

<u>Packaging</u>

Methods of disposal

: The classification of the product may meet the criteria for a hazardous waste.

: The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions

: This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.
14.2 UN proper shipping name	-	-	Adhesives	Adhesives
14.3 Transport hazard class(es)	-	-	-	-
14.4 Packing group	-	-	-	-
14.5 Environmental hazards	No.	No.	No.	No.

CW7100 CircuitWorks® Conductive Grease SECTION 14: Transport information **Additional** The environmentally information hazardous substance mark may appear if required by other

user

14.6 Special precautions for : 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

transportation regulations.

the event of an accident or spillage.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code : Not available.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions : Not applicable.

on the manufacture, placing on the market and use of certain dangerous substances. mixtures and articles

Other EU regulations

Europe inventory : Not determined.

Industrial emissions : Listed

(integrated pollution prevention and control) -

Air

: Listed **Industrial emissions**

(integrated pollution prevention and control) -

Water

Ozone depleting substances (1005/2009/EU)

Not listed.

Prior Informed Consent (PIC) (649/2012/EU)

Not listed.

Seveso Directive

This product is controlled under the Seveso Directive.

Danger criteria

Category

E1: Hazardous to the aquatic environment - Acute 1 or Chronic 1

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

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SECTION 15: Regulatory information

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

International lists

National inventory

Australia : All components are listed or exempted.

Canada : All components are listed or exempted.

China : All components are listed or exempted.

Japan : Japan inventory (ENCS): Not determined.

Japan inventory (ISHL): Not determined.

Malaysia : Not determined.

New Zealand: All components are listed or exempted.Philippines: All components are listed or exempted.Republic of Korea: All components are listed or exempted.Taiwan: All components are listed or exempted.

Turkey: Not determined.

United States : All components are listed or exempted.

15.2 Chemical safety

assessment

: This product contains substances for which Chemical Safety Assessments are still

required.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and

acronyms

: ATE = Acute Toxicity Estimate

CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No.

1272/2008]

DMEL = Derived Minimal Effect Level DNEL = Derived No Effect Level

EUH statement = CLP-specific Hazard statement PBT = Persistent, Bioaccumulative and Toxic PNEC = Predicted No Effect Concentration RRN = REACH Registration Number

vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
1,	Calculation method Calculation method

Full text of abbreviated H statements

H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Full text of classifications [CLP/GHS]

	ACUTE AQUATIC HAZARD - Category 1 LONG-TERM AQUATIC HAZARD - Category 1
-	

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CW7100 CircuitWorks® Conductive Grease

SECTION 16: Other information

Date of issue/ Date of

: 5/15/2017

revision

Date of previous issue : No previous validation

Version : 1

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the abovenamed 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.