



# SAFETY DATA SHEET

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II, as amended by Commission Regulation (EU) 2020/878

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

### 1.1 Product identifier

Product name	<b>Cell Boost™ 7b, without Poloxamer-188, without Insulin, without L-Glutamine</b>
Catalogue Number	<b>SH31027.09KR</b>
Product description	Not available.
Product type	Solid.
Other means of identification	Not available.

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

#### Identified uses

For Further Manufacturing or Research Use. Not for Diagnostic or Therapeutic Use.

### 1.3 Details of the supplier of the safety data sheet

#### Supplier

Cytiva Austria  
Kremslstr. 5  
4061 Pasching  
AUSTRIA  
Phone: +43 7229 64865

#### Hours of operation

Mo. - Fr.  
08.30 - 17.00

HyClone Laboratories  
925 West 1800 South  
Logan, Utah 84321  
Phone: (435) 792-8000

Cytiva Singapore  
1 Maritime Square #13-01  
Harbourfront Centre  
Singapore 099253

Person who prepared the SDS: sds\_author@cytiva.com

#### Switzerland

Cytiva Austria  
Kremslstr. 5  
4061 Pasching  
AUSTRIA  
Phone: +43 7229 64865

### 1.4 Emergency telephone number

Call INFOTRAC 24 Hour number:  
001-352-323-3500 (Call Collect).

### National advisory body/Poison Centre

#### Switzerland

Vergiftungsnotruf  
Tel: 145

Aus dem Ausland oder bei technischen Problemen: +41 44 251 51 51

<https://www.toxinfo.ch/notruf-145>

## 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]

Skin Irrit. 2, H315  
Eye Irrit. 2, H319  
STOT SE 3, H335

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 acute dermal toxicity  
100 percent of the mixture consists of component(s) of unknown acute inhalation toxicity

**Ingredients of unknown ecotoxicity** Contains 100% 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** Causes skin irritation.  
Causes serious eye irritation.  
May cause respiratory irritation.

#### Precautionary statements

**General** Not applicable.

**Prevention** Wear protective gloves. Wear eye or face protection. Avoid breathing dust. Wash thoroughly after handling.

**Response** IF INHALED: Call a POISON CENTER or doctor if you feel unwell. Take off contaminated clothing and wash it before reuse. IF ON SKIN: Wash with plenty of water. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention.

**Storage** Store in a well-ventilated place. Keep container tightly closed.

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

**Supplemental label elements** Not applicable.

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

#### Special packaging requirements

**Containers to be fitted with child-resistant fastenings** Not applicable.

**Tactile warning of danger** Not applicable.

### 2.3 Other hazards

#### **Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII**

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

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

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

#### Mixture

Product/ingredient name	Identifiers	%	Classification Regulation (EC) No. 1272/2008 [CLP]	Type
tyrosine	EC: 200-460-4 CAS: 60-18-4	<48.25	Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335  See Section 16 for the full text of the H statements declared above.	[1]

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 physical, health or environmental hazard

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

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

<b>Eye contact</b>	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.
<b>Inhalation</b>	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. 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 necessary, call a poison center or physician. 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. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
<b>Skin contact</b>	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
<b>Ingestion</b>	Wash out mouth with water. Remove dentures if any. 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.
<b>Protection of first-aiders</b>	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.

### 4.2 Most important symptoms and effects, both acute and delayed

#### Over-exposure signs/symptoms

<b>Eye contact</b>	Adverse symptoms may include the following: pain or irritation watering redness
<b>Inhalation</b>	Adverse symptoms may include the following: respiratory tract irritation coughing
<b>Skin contact</b>	Adverse symptoms may include the following: irritation redness
<b>Ingestion</b>	No specific data.

### 4.3 Indication of any immediate medical attention and special treatment needed

<b>Notes to physician</b>	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
<b>Specific treatments</b>	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** No specific fire or explosion hazard.

**Hazardous combustion products** Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide  
nitrogen oxides  
sulfur oxides

### 5.3 Advice for firefighters

**Special precautions 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.

**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. 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".

### 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).

### 6.3 Methods and material for containment and cleaning up

**Small spill** Move containers from spill area. Avoid dust generation. Using a vacuum with HEPA filter will reduce dust dispersal. Place spilled material in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

**Large spill** Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor.

### 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. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. 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 between the following temperatures: 2 to 8°C (35.6 to 46.4°F). 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. Store locked up. 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. See Section 10 for incompatible materials before handling or use.

### 7.3 Specific end use(s)

**Recommendations** Not available.

**Industrial sector specific solutions** Not available.

## SECTION 8: Exposure controls/personal protection

The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario (s).

### 8.1 Control parameters

#### Occupational exposure limits

No exposure limit value known.

#### Biological exposure indices

No exposure indices known.

#### **Recommended monitoring procedures**

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

Not available.

#### PNECs

Not available.

### 8.2 Exposure controls

#### **Appropriate engineering controls**

Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapour or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

#### 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: chemical splash goggles.

#### 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.

##### **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.

<b>Environmental exposure controls</b>	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

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

### 9.1 Information on basic physical and chemical properties

#### Appearance

<b>Physical state</b>	Solid.
<b>Colour</b>	White. to Off-white. to Light Orange.
<b>Odour</b>	Not available.
<b>Odour threshold</b>	Not available.
<b>Melting point/freezing point</b>	Not applicable.
<b>Boiling point or initial boiling point and boiling range</b>	Not applicable.
<b>Flammability</b>	Not available.
<b>Lower and upper explosion limit</b>	Not applicable.
<b>Flash point</b>	[Product does not sustain combustion.]
<b>Auto-ignition temperature</b>	Not applicable.
<b>Decomposition temperature</b>	Not available.
<b>pH</b>	6 to 8 [Conc. (% w/w): 1%]
<b>Viscosity</b>	Not applicable.
<b>Solubility in water</b>	Not available.
<b>Partition coefficient: n-octanol/ water</b>	Not applicable.
<b>Vapour pressure</b>	Not available.
<b>Relative density</b>	Not available.
<b>Relative vapour density</b>	Not applicable.

#### Particle characteristics

<b>Median particle size</b>	Not available.
-----------------------------	----------------

### 9.2 Other information

#### 9.2.1 Information with regard to physical hazard classes

<b>Burning time</b>	Not available.
<b>Burning rate</b>	Not available.
<b>Explosive properties</b>	Not available.
<b>Oxidising properties</b>	Not available.

#### 9.2.2 Other safety characteristics

<b>Evaporation rate</b>	Not available.
	Not applicable.

## SECTION 10: Stability and reactivity

<b>10.1 Reactivity</b>	No specific test data related to reactivity available for this product or its ingredients.
<b>10.2 Chemical stability</b>	The product is stable.
<b>10.3 Possibility of hazardous reactions</b>	Under normal conditions of storage and use, hazardous reactions will not occur.
<b>10.4 Conditions to avoid</b>	No specific data.
<b>10.5 Incompatible materials</b>	No specific data.
<b>10.6 Hazardous decomposition products</b>	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

**Product/ingredient name**

tyrosine

**Result****Rat - Oral - LD50**  
>5110 mg/kg**Conclusion/Summary [Product]** Not available.**Acute toxicity estimates**

N/A

**Skin corrosion/irritation**

Not available.

**Conclusion/Summary [Product]** Not available.**Ingredient name**

tyrosine

**Conclusion/Summary**

Causes skin irritation.

**Serious eye damage/eye irritation**

Not available.

**Conclusion/Summary [Product]** Not available.**Ingredient name**

tyrosine

**Conclusion/Summary**

Causes serious eye irritation.

**Respiratory corrosion/irritation**

Not available.

**Conclusion/Summary [Product]** Not available.**Ingredient name**

tyrosine

**Conclusion/Summary**

May cause respiratory irritation.

**Respiratory or skin sensitization**

Not available.

**Skin****Conclusion/Summary [Product]** Not available.**Respiratory****Conclusion/Summary [Product]** Not available.**Germ cell mutagenicity**

Not available.

**Conclusion/Summary [Product]** Not available.**Carcinogenicity**

Not available.

**Conclusion/Summary [Product]** Not available.**Reproductive toxicity**

Not available.

**Conclusion/Summary [Product]** Not available.**Specific target organ toxicity (single exposure)**

Product/ingredient name	Result
tyrosine	-
<b><u>Specific target organ toxicity (repeated exposure)</u></b>	
Not available.	
<b><u>Aspiration hazard</u></b>	
Not available.	
<b>Information on likely routes of exposure</b>	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
<b><u>Potential acute health effects</u></b>	
Inhalation	May cause respiratory irritation.
Ingestion	No known significant effects or critical hazards.
Skin contact	Causes skin irritation.
Eye contact	Causes serious eye irritation.
<b><u>Symptoms related to the physical, chemical and toxicological characteristics</u></b>	
Inhalation	Adverse symptoms may include the following: respiratory tract irritation coughing
Ingestion	No specific data.
Skin contact	Adverse symptoms may include the following: irritation redness
Eye contact	Adverse symptoms may include the following: pain or irritation watering redness
<b><u>Delayed and immediate effects as well as chronic effects from short and long-term exposure</u></b>	
<b><u>Short term exposure</u></b>	
Potential immediate effects	Not available.
Potential delayed effects	Not available.
<b><u>Long term exposure</u></b>	
Potential immediate effects	Not available.
Potential delayed effects	Not available.
<b><u>Potential chronic health effects</u></b>	
Not available.	
<b>Conclusion/Summary [Product]</b>	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.
Reproductive toxicity	No known significant effects or critical hazards.
<b>11.2 Information on other hazards</b>	
<b>11.2.1 Endocrine disrupting properties</b>	
Not available.	
<b>Conclusion/Summary [Product]</b>	The product does not meet the criteria to be considered as having endocrine disrupting properties according to the criteria set out in either Regulation (EC) No. 1907/2006 or Regulation (EC) No 1272/2008.
<b>11.2.2 Other information</b>	
Not available.	



## SECTION 12: Ecological information

### 12.1 Toxicity

Not available.

**Conclusion/Summary [Product]** Not available.

#### Ingredient name

tyrosine

#### Conclusion/Summary

Naturally occurring substance

### 12.2 Persistence and degradability

Not available.

**Conclusion/Summary [Product]** Not available.

#### Ingredient name

tyrosine

#### Conclusion/Summary

Possibly hazardous, short-term degradation products are not likely. However, long-term degradation products may arise.

### 12.3 Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
tyrosine	-2.26	-	Low

### 12.4 Mobility in soil

#### Soil/water partition coefficient

##### Product/ingredient name

tyrosine

##### logK<sub>oc</sub>

1.5

##### K<sub>oc</sub>

31.8845

#### Results of PMT and vPvM assessment

Product/ingredient name	PMT	P	M	T	vPvM	vP	vM
tyrosine	No	N/A	Yes	No	N/A	N/A	Yes

#### Mobility

Not available.

#### Conclusion/Summary

The product does not meet the criteria to be considered as a PMT or vPvM.

### 12.5 Results of PBT and vPvB assessment

#### Regulation (EC) No. 1907/2006 [REACH]

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
tyrosine	No	N/A	N/A	No	N/A	N/A	N/A

#### Regulation (EC) No. 1272/2008 [CLP]

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
tyrosine	No	N/A	N/A	No	N/A	N/A	N/A

#### Conclusion/Summary

The product does not meet the criteria to be considered as a PBT or vPvB.

#### Regulation (EC) No. 1272/2008 [CLP]

### 12.6 Endocrine disrupting properties

Not applicable.

**Conclusion/Summary [Product]** The product does not meet the criteria to be considered as having endocrine disrupting properties according to the criteria set out in either Regulation (EC) No. 1907/2006 or Regulation (EC) No 1272/2008.

### 12.7 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**

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

**Packaging****Methods of disposal**

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
<b>14.1 UN number</b>	Not available.	Not available.	Not available.	Not available.
<b>14.2 UN proper shipping name</b>	Not available.	Not available.	Not available.	Not available.
<b>14.3 Transport hazard class(es)</b>	Not available.	Not available.	Not available.	Not available.
<b>14.4 Packing group</b>	-	-	-	-
<b>14.5 Environmental hazards</b>	No.	No.	No.	No.
<b>Additional information</b>	-	-	-	-

**14.6 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.

**14.7 Transport in bulk according to IMO instruments**

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 on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles****Other EU regulations**

**Industrial emissions (integrated pollution prevention and control) - Air** Not listed

**Industrial emissions (integrated pollution prevention and control) - Water** Not listed

**Explosive precursors** Not applicable.



---

<b>Date of issue/ Date of revision</b>	10 September 2025
<b>Date of previous issue</b>	No previous validation
<b>Version</b>	1

**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.

---