



# ▶ International Chemical Safety Cards (ICSCs)

## ▶ Session objectives

**At the end of the session, you will be able to:**

1. Understand the purpose of ICSCs.
2. Know who is responsible for ICSCs.
3. Describe the 12 categories of information provided on the ICSCs.
4. Realize how ICSCs are produced.
5. List in which languages ICSCs are available.
6. Explain how to access a specific ICSC.







# Introduction to ICSCs



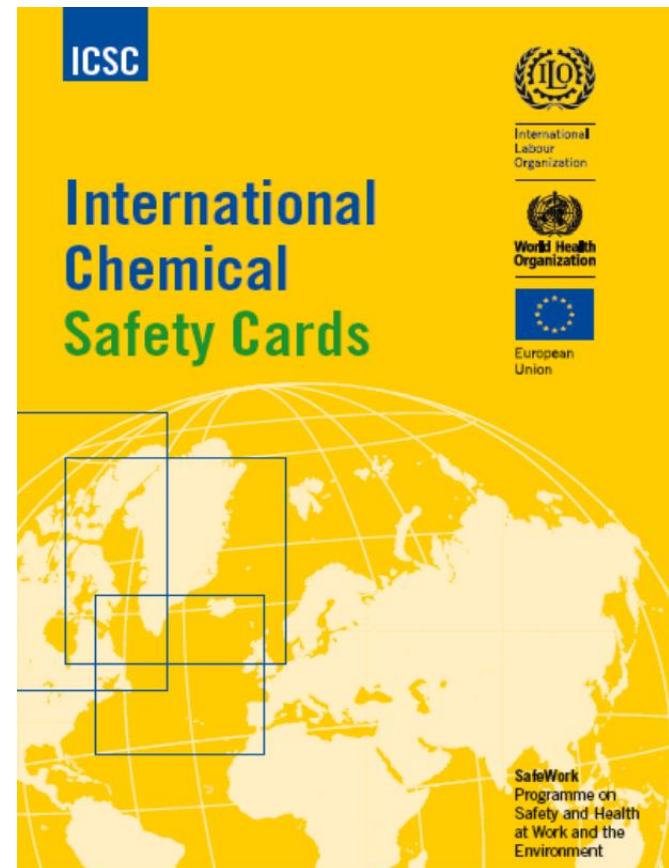
## Question:

Do you know what an ICSC is?



# ▶ What are International Chemical Safety Cards (ICSCs)?

- ▶ Data sheets
- ▶ Essential safety and health information on chemicals
- ▶ Clear and concise format



## ▶ What are International Chemical Safety Cards (ICSCs)?

- ▶ Used at shop floor level by workers and those responsible for occupational safety and health.
- ▶ Developed in 1984 with the International Program on Chemical Safety (IPCS).
- ▶ Contribution to recommendations made by 1992 UNCED in Agenda 21, Chapter 19 on environmentally sound management of toxic chemicals.
- ▶ Summarizes essential OSH information on chemical substances in a simple and structured way.
- ▶ Special role in small and medium-sized enterprises (SMEs).
- ▶ 1700 ICSCs are available free online ([www.ilo.org/icsc](http://www.ilo.org/icsc)) in English and 12 other languages: Chinese, Finnish, French, Hebrew, Hungarian, Italian, Japanese, Korean, Persian, Polish, Russian and Spanish. There are more translations in progress.
- ▶ Approximately 1.5 million downloads/year.

## Who is responsible for the ICSCs?

- ▶ The ICSCs project is a joint venture between the **International Labour Organization (ILO)** and the **World Health Organization (WHO)**, with the cooperation of the **European Commission**.
- ▶ The Technical Secretariat is provided by WHO.





**Information  
on an ICSC**





## Question:

Can you think of the type of information that is provided on an ICSC?



## What information is provided?

1	Identity of the chemical
2	Fire and explosion hazards
3	Prevention
4	Fire fighting
5	Acute health hazards
6	First aid
7	Spillage disposal, storage and packaging
8	Classification and labelling

**NITRIC ACID (> 70% in water)** ICSC: 0183 (November 2016)

**1** CAS #: 7697-37-2  
UN #: 2031  
EC Number: 231-714-2

<b>2</b>	<b>ACUTE HAZARDS</b>	<b>PREVENTION</b>	<b>FIRE FIGHTING</b>
	Not combustible but enhances combustion of other substances. Gives off irritating or toxic fumes (or gases) in a fire. Risk of fire and explosion on contact with incompatible substances. See Chemical Dangers.	NO contact with incompatible materials: See Chemical Dangers	Use water in large amounts, carbon dioxide, NO powder, foam. In case of fire: keep drums, etc., cool by spraying with water. NO direct contact of the substance with water.


**3**

**4**

**5** **AVOID ALL CONTACT! IN ALL CASES CONSULT A DOCTOR!**




	<b>SYMPTOMS</b>	<b>PREVENTION</b>	<b>FIRST AID</b>
<b>Inhalation</b>	Cough. Sore throat. Burning sensation. Shortness of breath. Laboured breathing.	Use ventilation, local exhaust or breathing protection.	Fresh air, rest. Half-upright position. Artificial respiration may be needed. Refer immediately for medical attention.
<b>Skin</b>	Pain. Yellow staining of the skin. Serious skin burns.	Protective gloves. Protective clothing. Apron.	Wear protective gloves when administering first aid. First rinse with plenty of water for at least 15 minutes, then remove contaminated clothes and rinse again. Refer immediately for medical attention.
<b>Eyes</b>	Redness. Pain. Severe burns.	Wear face shield or eye protection in combination with breathing protection.	Rinse with plenty of water for several minutes (remove contact lenses if easily possible). Refer immediately for medical attention.
<b>Ingestion</b>	Burns in mouth and throat. Burning sensation behind the breastbone. Abdominal pain. Vomiting. Shock or collapse.	Do not eat, drink, or smoke during work.	Rinse mouth. Give nothing to drink. Do NOT induce vomiting. Refer immediately for medical attention.

**6**

<b>7</b>	<b>SPILLAGE DISPOSAL</b>	<b>CLASSIFICATION &amp; LABELLING</b>
	Evacuate danger area! Consult an expert! Personal protection: chemical protection suit including self-contained breathing apparatus. Do NOT absorb in saw-dust or other combustible absorbents. Ventilation. Collect leaking liquid in sealable containers. Cautiously neutralize remainder with sodium carbonate. Then wash away with plenty of water.	According to UN GHS Criteria  <b>DANGER</b>
	<b>STORAGE</b>	May be corrosive to metals May intensify fire; oxidizer May cause respiratory irritation Causes severe skin burns and eye damage See Notes
	<b>PACKAGING</b>	<b>Transportation</b> UN Classification UN Hazard Class: 8; UN Subsidiary Risks: 5.1; UN Pack Group: I
	Unbreakable packaging. Put breakable packaging into closed unbreakable container. Do not transport with food and feedstuffs.	

**8**

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   **World Health Organization** **European Commission**



## What information is provided?





9	Physical and chemical properties and dangers
10	Short-term and long health effects
11	Regulatory information
12	Environmental data

NITRIC ACID (> 70% in water)		ICSC: 0183
<b>PHYSICAL &amp; CHEMICAL INFORMATION</b>		
9	<p><b>Physical State; Appearance</b> COLOURLESS-TO-YELLOW LIQUID WITH PUNGENT ODOUR.</p> <p><b>Physical dangers</b> No data.</p> <p><b>Chemical dangers</b> Decomposes on warming. This produces toxic and irritating fumes and gases including nitrogen oxides. The substance is a strong oxidant. It reacts violently with combustible and reducing materials, such as turpentine, charcoal and alcohol. The substance is a strong acid. It reacts violently with bases and is corrosive to metals. This produces flammable/explosive gas (hydrogen - see ICSC 0001). Reacts violently with organic compounds.</p>	<p>Formula: HNO<sub>3</sub> Molecular mass: 63.0 Boiling point: 121°C Melting point: -41.6°C Relative density (water = 1): 1.4 Solubility in water at 20°C: miscible Vapour pressure, kPa at 20°C: 6.4 Relative vapour density (air = 1): 2.2 Relative density of the vapour/air-mixture at 20°C (air = 1): 1.07 Octanol/water partition coefficient as log Pow: -0.21</p>
	<b>EXPOSURE &amp; HEALTH EFFECTS</b>	
10	<p><b>Routes of exposure</b> Serious local effects by all routes of exposure.</p> <p><b>Effects of short-term exposure</b> The substance is corrosive to the eyes, skin and respiratory tract. Corrosive on ingestion. Inhalation may cause asthma-like reactions (RADS). Exposure could cause asphyxiation due to swelling in the throat. Inhalation of high concentrations may cause pneumonitis and lung oedema. See Notes.</p>	<p><b>Inhalation risk</b> A harmful contamination of the air can be reached very quickly on evaporation of this substance at 20°C.</p> <p><b>Effects of long-term or repeated exposure</b> Repeated or prolonged inhalation may cause effects on the teeth. This may result in tooth erosion. The substance may have effects on the upper respiratory tract and lungs. This may result in chronic inflammation of the respiratory tract and reduced lung function. Mists of this strong inorganic acid are carcinogenic to humans. See Notes.</p>
	<b>OCCUPATIONAL EXPOSURE LIMITS</b>	
11	<p>TLV: 2 ppm as TWA; 4 ppm as STEL. EU-OEL: 2.6 mg/m<sup>3</sup>, 1 ppm as STEL</p>	
<b>ENVIRONMENT</b>		
<b>NOTES</b>		
<p>The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential. IARC considers mists of strong inorganic acid to be carcinogenic (group 1). However there is no information available on the carcinogenicity of other physical forms of this substance. Therefore no classification for carcinogenicity under GHS has been applied. NEVER pour water into this substance; when dissolving or diluting always add it slowly to the water. The odour warning when the exposure limit value is exceeded is insufficient. Rinse contaminated clothing with plenty of water because of fire hazard.</p>		
<b>ADDITIONAL INFORMATION</b>		
<p><b>EC Classification</b> Symbol: O, C, R: 8-35; S: (1/2)-23-26-36-45; Note: B</p>		
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# 1. Identity of the chemical

- ▶ Chemical name
- ▶ Synonyms
- ▶ Molecular formula
- ▶ Common registry numbers (CAS, EC number)

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<b>AVOID ALL CONTACT! IN ALL CASES CONSULT A DOCTOR!</b>			
	<b>SYMPTOMS</b>	<b>PREVENTION</b>	<b>FIRST AID</b>
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<b>STORAGE</b>		 <b>DANGER</b>	
Separated from combustible substances, reducing agents, bases, organic chemicals and food and feedstuffs. Cool. Dry. Keep in a well-ventilated room. Store only in original container.		May be corrosive to metals May intensify fire, oxidizer May cause respiratory irritation Causes severe skin burns and eye damage See Notes	
<b>PACKAGING</b>		<b>Transportation</b>	
Unbreakable packaging. Put breakable packaging into closed unbreakable container. Do not transport with food and feedstuffs.		UN Classification UN Hazard Class: 8; UN Subsidiary Risks: 5.1; UN Pack Group: 1	
 			
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# 1. Identity of the chemical

- ▶ The ICSC project is not intended to generate any sort of classification of chemicals. It makes reference to existing classifications :
  - UN numbers
  - Chemical Abstracts Services (CAS) number
  - Registry of Toxic Effects of Chemical Substances (RTECS/NIOSH) numbers

<b>NITRIC ACID (&gt; 70% in water)</b>	<b>ICSC: 0183 (November 2016)</b>
<b>CAS #: 7697-37-2</b>	
<b>UN #: 2031</b>	
<b>EC Number: 231-714-2</b>	

# 1. Identity of the chemical

<b>MERCURY</b> Quicksilver Liquid silver	<b>ICSC: 0056 (November 2019)</b>
<b>CAS #: 7439-97-6</b> <b>UN #: 2809</b> <b>EC Number: 231-106-7</b>	

<b>PERFLUOROOCCTANOIC ACID</b> Pentadecafluorooctanoic acid Pentadecafluoro-n-octanoic acid Perfluorocaprylic acid PFOA	<b>ICSC: 1613 (April 2017)</b>
<b>CAS #: 335-67-1</b> <b>UN #: 3261</b> <b>EC Number: 206-397-9</b>	



## 2. Fire and explosion hazards


- Situations which could give rise to a risk of fire or explosion.

	ACUTE HAZARDS
<b>FIRE &amp; EXPLOSION</b>	<p>Not combustible but enhances combustion of other substances. Gives off irritating or toxic fumes (or gases) in a fire. Heating will cause rise in pressure with risk of bursting.</p> <p>Risk of fire and explosion on contact with many common organic compounds.</p>

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	ACUTE HAZARDS	PREVENTION	FIRE FIGHTING
<b>FIRE &amp; EXPLOSION</b>	Not combustible but enhances combustion of other substances. Gives off irritating or toxic fumes (or gases) in a fire. Risk of fire and explosion on contact with incompatible substances. See Chemical Dangers.	NO contact with incompatible materials: See Chemical Dangers	Use water in large amounts, carbon dioxide. NO powder, foam. In case of fire: keep drums, etc., cool by spraying with water. NO direct contact of the substance with water.

AVOID ALL CONTACT! IN ALL CASES CONSULT A DOCTOR!			
	SYMPTOMS	PREVENTION	FIRST AID
<b>Inhalation</b>	Cough. Sore throat. Burning sensation. Shortness of breath. Laboured breathing.	Use ventilation, local exhaust or breathing protection.	Fresh air, rest. Half-upright position. Artificial respiration may be needed. Refer immediately for medical attention.
<b>Skin</b>	Pain. Yellow staining of the skin. Serious skin burns.	Protective gloves. Protective clothing. Apron.	Wear protective gloves when administering first aid. First rinse with plenty of water for at least 15 minutes, then remove contaminated clothes and rinse again. Refer immediately for medical attention.
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<b>STORAGE</b>	
Separated from combustible substances, reducing agents, bases, organic chemicals and food and feedstuffs. Cool. Dry. Keep in a well-ventilated room. Store only in original container.	
<b>PACKAGING</b>	
Unbreakable packaging. Put breakable packaging into closed unbreakable container. Do not transport with food and feedstuffs.	

## 3. Fire fighting information


- ▶ Emergency response advice tailored to the properties of the chemical.

FIRE FIGHTING
Use foam, water spray, carbon dioxide, powder. In case of fire: keep drums, etc., cool by spraying with water.

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## 4. Acute health hazards and prevention


- Symptoms of exposure (inhalation, skin, eyes, ingestion).
- Routes by which the chemical can be absorbed into the body.

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	SYMPTOMS	PREVENTION
INHALATION	Burning sensation. Cough. Laboured breathing. Shortness of breath. Sore throat. Symptoms may be delayed (see Notes).	Ventilation, local exhaust, or breathing protection.
SKIN	Serious skin burns. Pain. Yellow discoloration.	Protective gloves. Protective clothing.
EYES	Redness. Pain. Burns.	Face shield or eye protection in combination with breathing protection.
INGESTION	Sore throat. Abdominal pain. Burning sensation in the throat and chest. Shock or collapse. Vomiting.	Do not eat, drink, or smoke during work.

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<b>PACKAGING</b>	
Unbreakable packaging. Put breakable packaging into closed unbreakable container. Do not transport with food and feedstuffs.	

## 5. Prevention

- Information on appropriate engineering controls, protective clothing and other equipment which could either prevent exposure or avoid the risk of fire or explosion.

### PREVENTION

NO open flames, NO sparks and NO smoking. Closed system, ventilation, explosion-proof electrical equipment and lighting. Do NOT use compressed air for filling, discharging, or handling. Use non-sparking handtools. Prevent build-up of electrostatic charges (e.g., by grounding).

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## 6 First aid


- ▶ Emergency response advice tailored to the properties of the chemical.

FIRST AID
Fresh air, rest. Half-upright position. Artificial respiration may be needed. Refer immediately for medical attention.
Remove contaminated clothes. Rinse skin with plenty of water or shower. Refer for medical attention.
First rinse with plenty of water (remove contact lenses if easily possible). Refer immediately for medical attention.
Do NOT induce vomiting. Give one or two glasses of water to drink. Rest. Refer for medical attention.

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<b>Ingestion</b>	Burns in mouth and throat. Burning sensation behind the breastbone. Abdominal pain. Vomiting. Shock or collapse.	Do not eat, drink, or smoke during work.	Rinse mouth. Give nothing to drink. Do NOT induce vomiting. Refer immediately for medical attention.

SPILLAGE DISPOSAL	CLASSIFICATION & LABELLING
Evacuate danger area! Consult an expert! Personal protection: chemical protection suit including self-contained breathing apparatus. Do NOT absorb in saw-dust or other combustible absorbents. Ventilation. Collect leaking liquid in sealable containers. Cautiously neutralize remainder with sodium carbonate. Then wash away with plenty of water.	<p>According to UN GHS Criteria</p>  <p><b>DANGER</b></p> <p>May be corrosive to metals May intensify fire; oxidizer May cause respiratory irritation Causes severe skin burns and eye damage See Notes</p> <p><b>Transportation</b> <b>UN Classification</b> UN Hazard Class: 8; UN Subsidiary Risks: 5.1; UN Pack Group: I</p>
<b>STORAGE</b>	
Separated from combustible substances, reducing agents, bases, organic chemicals and food and feedstuffs. Cool. Dry. Keep in a well-ventilated room. Store only in original container.	
<b>PACKAGING</b>	
Unbreakable packaging. Put breakable packaging into closed unbreakable container. Do not transport with food and feedstuffs.	



## 7. Spillage disposal, storage and packaging


- Methods for containment, safety measures to protect workers dealing with a spillage, appropriate storage conditions based on chemical properties.

SPILLAGE DISPOSAL
Evacuate danger area! Consult an expert! Personal protection: chemical protection suit and filter respirator for mercury adapted to the airborne concentration of the substance. Ventilation. Do NOT let this chemical enter the environment. Collect leaking and spilled liquid in sealable non-metallic containers as far as possible. Then store and dispose of according to local regulations.
STORAGE
Provision to contain effluent from fire extinguishing. Separated from food and feedstuffs. Well closed. Store in an area without drain or sewer access.
PACKAGING
Special material. Do not transport with food and feedstuffs. Marine pollutant.

NITRIC ACID (> 70% in water)	ICSC: 0183 (November 2016)
CAS #: 7697-37-2 UN #: 2031 EC Number: 231-714-2	


	ACUTE HAZARDS	PREVENTION	FIRE FIGHTING
<b>FIRE &amp; EXPLOSION</b>	Not combustible but enhances combustion of other substances. Gives off irritating or toxic fumes (or gases) in a fire. Risk of fire and explosion on contact with incompatible substances. See Chemical Dangers.	NO contact with incompatible materials: See Chemical Dangers	Use water in large amounts, carbon dioxide. NO powder, foam. In case of fire: keep drums, etc., cool by spraying with water. NO direct contact of the substance with water.

AVOID ALL CONTACT! IN ALL CASES CONSULT A DOCTOR!			
	SYMPTOMS	PREVENTION	FIRST AID
<b>Inhalation</b>	Cough. Sore throat. Burning sensation. Shortness of breath. Laboured breathing.	Use ventilation, local exhaust or breathing protection.	Fresh air, rest. Half-upright position. Artificial respiration may be needed. Refer immediately for medical attention.
<b>Skin</b>	Pain. Yellow staining of the skin. Serious skin burns.	Protective gloves. Protective clothing. Apron.	Wear protective gloves when administering first aid. First rinse with plenty of water for at least 15 minutes, then remove contaminated clothes and rinse again. Refer immediately for medical attention.
<b>Eyes</b>	Redness. Pain. Severe burns.	Wear face shield or eye protection in combination with breathing protection.	Rinse with plenty of water for several minutes (remove contact lenses if easily possible). Refer immediately for medical attention.
<b>Ingestion</b>	Burns in mouth and throat. Burning sensation behind the breastbone. Abdominal pain. Vomiting. Shock or collapse.	Do not eat, drink, or smoke during work.	Rinse mouth. Give nothing to drink. Do NOT induce vomiting. Refer immediately for medical attention.

SPILLAGE DISPOSAL	CLASSIFICATION & LABELLING
Evacuate danger area! Consult an expert! Personal protection: chemical protection suit including self-contained breathing apparatus. Do NOT absorb in saw-dust or other combustible absorbents. Ventilation. Collect leaking liquid in sealable containers. Cautiously neutralize remainder with sodium carbonate. Then wash away with plenty of water.	According to UN GHS Criteria  <b>DANGER</b>
STORAGE	May be corrosive to metals May intensify fire; oxidizer May cause respiratory irritation Causes severe skin burns and eye damage See Notes
Separated from combustible substances, reducing agents, bases, organic chemicals and food and feedstuffs. Cool. Dry. Keep in a well-ventilated room. Store only in original container.	<b>Transportation</b> <b>UN Classification</b> UN Hazard Class: 8; UN Subsidiary Risks: 5.1; UN Pack Group: I
PACKAGING	
Unbreakable packaging. Put breakable packaging into closed unbreakable container. Do not transport with food and feedstuffs.	

## 8. Classification and labelling


- Symbols / pictograms, hazard and precaution statements from EU legislation and according to GHS.

CLASSIFICATION & LABELLING	
According to UN GHS Criteria	
	
<b>DANGER</b>	
<p>May be corrosive to metals            Fatal if inhaled            May damage fertility or the unborn child            Causes damage to central nervous system and kidneys            Causes damage to the central nervous system and the kidneys through prolonged or repeated exposure            Very toxic to aquatic life with long lasting effects</p>	
<p><b>Transportation</b>  <b>UN Classification</b>            UN Hazard Class: 8; UN Subsidiary Risks: 6.1; UN Pack Group: III</p>	

NITRIC ACID (> 70% in water)		ICSC: 0183 (November 2016)	
CAS #: 7697-37-2			
UN #: 2031			
EC Number: 231-714-2			

	ACUTE HAZARDS	PREVENTION	FIRE FIGHTING
<b>FIRE &amp; EXPLOSION</b>	Not combustible but enhances combustion of other substances. Gives off irritating or toxic fumes (or gases) in a fire. Risk of fire and explosion on contact with incompatible substances. See Chemical Dangers.	NO contact with incompatible materials: See Chemical Dangers	Use water in large amounts, carbon dioxide, NO powder, foam. In case of fire: keep drums, etc., cool by spraying with water. NO direct contact of the substance with water.

AVOID ALL CONTACT! IN ALL CASES CONSULT A DOCTOR!			
	SYMPTOMS	PREVENTION	FIRST AID
<b>Inhalation</b>	Cough. Sore throat. Burning sensation. Shortness of breath. Laboured breathing.	Use ventilation, local exhaust or breathing protection.	Fresh air, rest. Half-upright position. Artificial respiration may be needed. Refer immediately for medical attention.
<b>Skin</b>	Pain. Yellow staining of the skin. Serious skin burns.	Protective gloves. Protective clothing. Apron.	Wear protective gloves when administering first aid. First rinse with plenty of water for at least 15 minutes, then remove contaminated clothes and rinse again. Refer immediately for medical attention.
<b>Eyes</b>	Redness. Pain. Severe burns.	Wear face shield or eye protection in combination with breathing protection.	Rinse with plenty of water for several minutes (remove contact lenses if easily possible). Refer immediately for medical attention.
<b>Ingestion</b>	Burns in mouth and throat. Burning sensation behind the breastbone. Abdominal pain. Vomiting. Shock or collapse.	Do not eat, drink, or smoke during work.	Rinse mouth. Give nothing to drink. Do NOT induce vomiting. Refer immediately for medical attention.

SPILLAGE DISPOSAL	CLASSIFICATION & LABELLING
Evacuate danger area! Consult an expert! Personal protection: chemical protection suit including self-contained breathing apparatus. Do NOT absorb in saw-dust or other combustible absorbents. Ventilation. Collect leaking liquid in sealable containers. Cautiously neutralize remainder with sodium carbonate. Then wash away with plenty of water.	<p>According to UN GHS Criteria</p>  <p><b>DANGER</b></p> <p>May be corrosive to metals            May intensify fire; oxidizer            May cause respiratory irritation            Causes severe skin burns and eye damage            See Notes</p> <p><b>Transportation</b>  <b>UN Classification</b>            UN Hazard Class: 8; UN Subsidiary Risks: 5.1; UN Pack Group: I</p>
<b>STORAGE</b>	
Separated from combustible substances, reducing agents, bases, organic chemicals and food and feedstuffs. Cool. Dry. Keep in a well-ventilated room. Store only in original container.	
<b>PACKAGING</b>	
Unbreakable packaging. Put breakable packaging into closed unbreakable container. Do not transport with food and feedstuffs.	





## ▶ Spotlight on the GHS










- ▶ The Globally Harmonized System of Classification and Labelling of Chemicals (GHS) is an internationally-harmonized approach to classification and labelling of chemicals.
- ▶ One of its aims is to make it easier for users to identify chemical hazards in the workplace in a more consistent way.





# How is the GHS applied in the ICSC?

NITRIC ACID (> 70% in water) ICSC: 0183 (November 2016)			
CAS #: 7697-37-2 UN #: 2031 EC Number: 231-714-2			
	ACUTE HAZARDS	PREVENTION	FIRE FIGHTING
<b>FIRE &amp; EXPLOSION</b>	Not combustible but enhances combustion of other substances. Gives off irritating or toxic fumes (or gases) in a fire. Risk of fire and explosion on contact with incompatible substances. See Chemical Dangers.	NO contact with incompatible materials: See Chemical Dangers	Use water in large amounts, carbon dioxide, NO powder, foam. In case of fire, keep drums, etc., cool by spraying with water. NO direct contact of the substance with water.
AVOID ALL CONTACT! IN ALL CASES CONSULT A DOCTOR!			
	SYMPTOMS	PREVENTION	FIRST AID
<b>Inhalation</b>	Cough. Sore throat. Burning sensation. Shortness of breath. Laboured breathing.	Use ventilation, local exhaust or breathing protection.	Fresh air, rest. Half-upright position. Artificial respiration may be needed. Refer immediately for medical attention.
<b>Skin</b>	Pain. Yellow staining of the skin. Serious skin burns.	Protective gloves. Protective clothing. Apron.	Wear protective gloves when administering first aid. First rinse with plenty of water for at least 15 minutes, then remove contaminated clothes and rinse again. Refer immediately for medical attention.
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<b>Ingestion</b>	Burns in mouth and throat. Burning sensation behind the breastbone. Abdominal pain. Vomiting. Shock or collapse.	Do not eat, drink, or smoke during work.	Rinse mouth. Give nothing to drink. Do NOT induce vomiting. Refer immediately for medical attention.
SPILLAGE DISPOSAL		CLASSIFICATION & LABELLING	
Evacuate danger area! Consult an expert! Personal protection: chemical protection suit including self-contained breathing apparatus. Do NOT absorb in saw-dust or other combustible absorbents. Ventilation. Collect leaking liquid in sealable containers. Cautiously neutralize remainder with sodium carbonate. Then wash away with plenty of water.		According to UN GHS Criteria:  <b>DANGER</b>	
STORAGE		May be corrosive to metals May intensify fire; oxidizer May cause respiratory irritation Causes severe skin burns and eye damage See Notes	
Separated from combustible substances, reducing agents, bases, organic chemicals and food and feedstuffs. Cool. Dry. Keep in a well-ventilated room. Store only in original container.		<b>Transportation</b> UN Classification UN Hazard Class: 8; UN Subsidiary Risks: 5.1; UN Pack Group: I	
PACKAGING			
Unbreakable packaging. Put breakable packaging into closed unbreakable container. Do not transport with food and feedstuffs.			
  Prepared by an international group of experts on behalf of ILO and WHO, with the financial assistance of the European Commission. © ILO and WHO 2021 			

GHS PICTOGRAMS			
<b>Health Hazard</b> Carcinogens, respiratory sensitisers, reproductive toxicity, target organ toxicity, germ cell mutagens 	<b>Flame</b> Flammable gases, liquids, & solids; self-reactives; pyrophorics; 	<b>Exclamation Mark</b> Irritant, dermal sensitiser, acute toxicity (harmful) 	
<b>Gas Cylinder</b> Compressed gases; liquefied gases; dissolved gases 	<b>Corrosion</b> Skin corrosion; serious eye damage 	<b>Exploding Bomb</b> Explosives, self-reactives, organic peroxides 	
<b>Flame Over Circle</b> Oxidisers gases, liquids and solids 	<b>Environment</b> Aquatic toxicity 	<b>Skull &amp; Crossbones</b> Acute toxicity (severe) 	

## 9. Physical and chemical properties and dangers

- ▶ Physical state, melting and boiling points, vapour pressure, solubility in water.
- ▶ Substances with which the chemical can react to form a hazardous product or which will result in a fire or explosion hazard. Materials known to be incompatible with the chemical.

PHYSICAL & CHEMICAL INFORMATION	
<p><b>Physical State; Appearance</b> COLOURLESS TO YELLOW LIQUID WITH PUNGENT ODOUR.</p> <p><b>Physical dangers</b> No data.</p> <p><b>Chemical dangers</b> Decomposes on warming. This produces toxic and irritating fumes and gases including nitrogen oxides. The substance is a strong oxidant. It reacts violently with combustible and reducing materials, such as turpentine, charcoal and alcohol. The substance is a strong acid. It reacts violently with bases and is corrosive to metals. This produces flammable/explosive gas (hydrogen - see ICSC 0001). Reacts violently with organic compounds.</p>	<p><b>Formula:</b> HNO<sub>3</sub> <b>Molecular mass:</b> 63.0 <b>Boiling point:</b> 121°C <b>Melting point:</b> -41.6°C <b>Relative density (water = 1):</b> 1.4 <b>Solubility in water at 20°C:</b> miscible <b>Vapour pressure, kPa at 20°C:</b> 6.4 <b>Relative vapour density (air = 1):</b> 2.2 <b>Relative density of the vapour/air-mixture at 20°C (air = 1):</b> 1.07 <b>Octanol/water partition coefficient as log Pow:</b> -0.21</p>
EXPOSURE & HEALTH EFFECTS	
<p><b>Routes of exposure</b> Serious local effects by all routes of exposure.</p> <p><b>Effects of short-term exposure</b> The substance is corrosive to the eyes, skin and respiratory tract. Corrosive on ingestion. Inhalation may cause asthma-like reactions (TACS). Exposure could cause asphyxiation due to swelling in the throat. Inhalation of high concentrations may cause pneumonitis and lung oedema. See Notes.</p>	<p><b>Inhalation risk</b> A harmful contamination of the air can be reached very quickly on evaporation of this substance at 20°C.</p> <p><b>Effects of long-term or repeated exposure</b> Repeated or prolonged inhalation may cause effects on the teeth. This may result in tooth erosion. The substance may have effects on the upper respiratory tract and lungs. This may result in chronic inflammation of the respiratory tract and reduced lung function. Mists of this strong inorganic acid are carcinogenic to humans. See Notes.</p>
OCCUPATIONAL EXPOSURE LIMITS	
<p>TLV: 2 ppm as TWA; 4 ppm as STEL EU-OEL: 2.6 mg/m<sup>3</sup>; 1 ppm as STEL</p>	
ENVIRONMENT	
<p><b>NOTES</b> The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential. IARC considers mists of strong inorganic acid to be carcinogenic (group 1). However there is no information available on the carcinogenicity of other physical forms of this substance. Therefore no classification for carcinogenicity under GHS has been applied. NEVER pour water into this substance, when dissolving or diluting always add it slowly to the water. The odour warning when the exposure limit value is exceeded is insufficient. Rinse contaminated clothing with plenty of water because of fire hazard.</p>	
ADDITIONAL INFORMATION	
<p><b>EC Classification</b> Symbol: D, C, R, 8-35; S: (12)-23-26-36-45; Note: B</p> <p>All rights reserved. The published material is being distributed without warranty of any kind, either expressed or implied. Neither ILO nor WHO nor the European Commission shall be responsible for the interpretation and use of the information contained in this material.</p>	

PHYSICAL & CHEMICAL INFORMATION	
<p><b>PHYSICAL STATE; APPEARANCE:</b> COLOURLESS TO YELLOW LIQUID, WITH PUNGENT ODOUR.</p> <p><b>CHEMICAL DANGERS:</b> The substance decomposes on warming producing nitrogen oxides. The substance is a strong oxidant and reacts violently with combustible and reducing materials, e.g., turpentine, charcoal, alcohol. The substance is a strong acid, it reacts violently with bases and is corrosive to metals forming flammable/explosive gas (hydrogen - see ICSC0001). Reacts violently with organic compounds.</p>	<p>Boiling point: 121°C Melting point: -41.6°C Relative density (water = 1): 1.4 Solubility in water: miscible Vapour pressure, kPa at 20°C: 6.4 Relative vapour density (air = 1): 2.2 Relative density of the vapour/air-mixture at 20°C (air = 1): 1.07 Octanol/water partition coefficient as log Pow: -0.21</p>

## 10. Short-term and long-term health effects

- ▶ Adverse health effects which could arise from short or long-term exposure, as identified from toxicological tests or from poisoning incident case studies.

EXPOSURE & HEALTH EFFECTS	
<p><b>ROUTES OF EXPOSURE:</b> Serious local effects by all routes of exposure.</p> <p><b>EFFECTS OF SHORT-TERM EXPOSURE:</b> The substance is corrosive to the eyes, the skin and the respiratory tract. Corrosive on ingestion. Inhalation may cause lung oedema (see Notes). The effects may be delayed (See Notes).</p>	<p><b>INHALATION RISK:</b> A harmful contamination of the air can be reached very quickly on evaporation of this substance at 20°C.</p> <p><b>EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:</b> Lungs may be affected by repeated or prolonged exposure to the vapour. The substance may have effects on the teeth, resulting in teeth erosion.</p>

NITRIC ACID (>70% in water)		ICSC: 0183
<b>PHYSICAL &amp; CHEMICAL INFORMATION</b>		
<p><b>Physical State: Appearance</b> COLOURLESS-TO-YELLOW LIQUID WITH PUNGENT ODOUR.</p> <p><b>Physical dangers</b> No data.</p> <p><b>Chemical dangers</b> Decomposes on warming. This produces toxic and irritating fumes and gases including nitrogen oxides. The substance is a strong oxidant. It reacts violently with combustible and reducing materials, such as turpentine, charcoal and alcohol. The substance is a strong acid. It reacts violently with bases and is corrosive to metals. This produces flammable/explosive gas (hydrogen - see ICSC 0001). Reacts violently with organic compounds.</p>	<p>Formula: HNO<sub>3</sub> Molecular mass: 63.0 Boiling point: 121°C Melting point: -41.6°C Relative density (water = 1): 1.4 Solubility in water at 20°C: miscible Vapour pressure, kPa at 20°C: 6.4 Relative vapour density (air = 1): 2.2 Relative density of the vapour/air-mixture at 20°C (air = 1): 1.07 Octanol/water partition coefficient as log Pow: -0.21</p>	
<b>EXPOSURE &amp; HEALTH EFFECTS</b>		
<p><b>Routes of exposure</b> Serious local effects by all routes of exposure.</p> <p><b>Effects of short-term exposure</b> The substance is corrosive to the eyes, skin and respiratory tract. Corrosive on ingestion. Inhalation may cause asthma-like reactions (RAOS). Exposure could cause asphyxiation due to swelling in the throat. Inhalation of high concentrations may cause pneumonitis and lung oedema. See Notes.</p>	<p><b>Inhalation risk</b> A harmful contamination of the air can be reached very quickly on evaporation of this substance at 20°C.</p> <p><b>Effects of long-term or repeated exposure</b> Repeated or prolonged inhalation may cause effects on the teeth. This may result in tooth erosion. The substance may have effects on the upper respiratory tract and lungs. This may result in chronic inflammation of the respiratory tract and reduced lung function.</p>	
<b>OCCUPATIONAL EXPOSURE LIMITS</b>		
<p>TLV: 2 ppm as TWA; 4 ppm as STEL EU-OEL: 2.6 mg/m<sup>3</sup>, 1 ppm as STEL</p>		
<b>ENVIRONMENT</b>		
<b>NOTES</b>		
<p>The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential. IARC considers mists of strong inorganic acid to be carcinogenic (group 1). However there is no information available on the carcinogenicity of other physical forms of this substance. Therefore no classification for carcinogenicity under GHS has been applied. NEVER pour water into this substance; when dissolving or diluting always add it slowly to the water. The odour warning when the exposure limit value is exceeded is insufficient. Rinse contaminated clothing with plenty of water because of fire hazard.</p>		
<b>ADDITIONAL INFORMATION</b>		
<p><b>EC Classification</b> Symbol: O, C, R, 8-35; S: (1/2)-23-26-36-45; Note: B</p>		
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# 11. Regulatory information and occupational exposure limits

- ▶ Occupational exposure limits published by institutions in various jurisdictions.

OCCUPATIONAL EXPOSURE LIMITS
TLV: 0.025 mg/m <sup>3</sup> , as TWA; (skin); A4 (not classifiable as a human carcinogen); BEI issued. EU-OEL: 0,02 mg/m <sup>3</sup> as TWA. MAK: (inhalable fraction): 0.02 mg/m <sup>3</sup> , peak limitation category: II(8); skin absorption (H); sensitization of skin (SH); carcinogen category: 3; pregnancy risk group: D

NITRIC ACID (> 70% in water) ICSC: 0163	
<b>PHYSICAL &amp; CHEMICAL INFORMATION</b>	
<p><b>Physical State; Appearance</b> COLOURLESS-TO-YELLOW LIQUID WITH PUNGENT ODOUR.</p> <p><b>Physical dangers</b> No data.</p> <p><b>Chemical dangers</b> Decomposes on warming. This produces toxic and irritating fumes and gases including nitrogen oxides. The substance is a strong oxidant. It reacts violently with combustible and reducing materials, such as turpentine, charcoal and alcohol. The substance is a strong acid. It reacts violently with bases and is corrosive to metals. This produces flammable/explosive gas (hydrogen - see ICSC 0001). Reacts violently with organic compounds.</p>	<p>Formula: HNO<sub>3</sub> Molecular mass: 63.0 Boiling point: 121°C Melting point: -41.6°C Relative density (water = 1): 1.4 Solubility in water at 20°C: miscible Vapour pressure, kPa at 20°C: 6.4 Relative vapour density (air = 1): 2.2 Relative density of the vapour/air-mixture at 20°C (air = 1): 1.07 Octanol/water partition coefficient as log Pow: -0.21</p>
<b>EXPOSURE &amp; HEALTH EFFECTS</b>	
<p><b>Routes of exposure</b> Serious local effects by all routes of exposure.</p> <p><b>Effects of short-term exposure</b> The substance is corrosive to the eyes, skin and respiratory tract. Corrosive on ingestion. Inhalation may cause asthma-like reactions (RAIDS). Exposure could cause asphyxiation due to swelling in the throat. Inhalation of high concentrations may cause pneumonitis and lung oedema. See Notes.</p>	<p><b>Inhalation risk</b> A harmful contamination of the air can be reached very quickly on evaporation of this substance at 20°C.</p> <p><b>Effects of long-term or repeated exposure</b> Repeated or prolonged inhalation may cause effects on the teeth. This may result in tooth erosion. The substance may have effects on the upper respiratory tract and lungs. This may result in chronic inflammation of the respiratory tract and reduced lung function. Mists of this strong inorganic acid are carcinogenic to humans. See Notes.</p>
<b>OCCUPATIONAL EXPOSURE LIMITS</b>	
<p>TLV: 2 ppm as TWA; 4 ppm as STEL EU-OEL: 2,6 mg/m<sup>3</sup>, 1 ppm as STEL</p>	
<b>ENVIRONMENT</b>	
<b>NOTES</b>	
<p>The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential. IARC considers mists of strong inorganic acid to be carcinogenic (group 1). However there is no information available on the carcinogenicity of other physical forms of this substance. Therefore no classification for carcinogenicity under GHS has been applied. NEVER pour water into this substance; when dissolving or diluting always add it slowly to the water. The odour warning when the exposure limit value is exceeded is insufficient. Rinse contaminated clothing with plenty of water because of fire hazard.</p>	
<b>ADDITIONAL INFORMATION</b>	
<p><b>EC Classification</b> Symbol: O, C, R: 8-35; S: (1/2)-23-26-36-45; Note: B</p>	
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## 12. Environmental data

- Information on environmental hazards e.g. risk to aquatic organisms, bioaccumulation.

### ENVIRONMENT

The substance is very toxic to aquatic organisms. This substance may be hazardous to the environment. Special attention should be given to birds. Bioaccumulation of this chemical may occur along the food chain, for example in milk and aquatic organisms. This substance does enter the environment under normal use. Great care, however, should be taken to avoid any additional release, for example through inappropriate disposal.

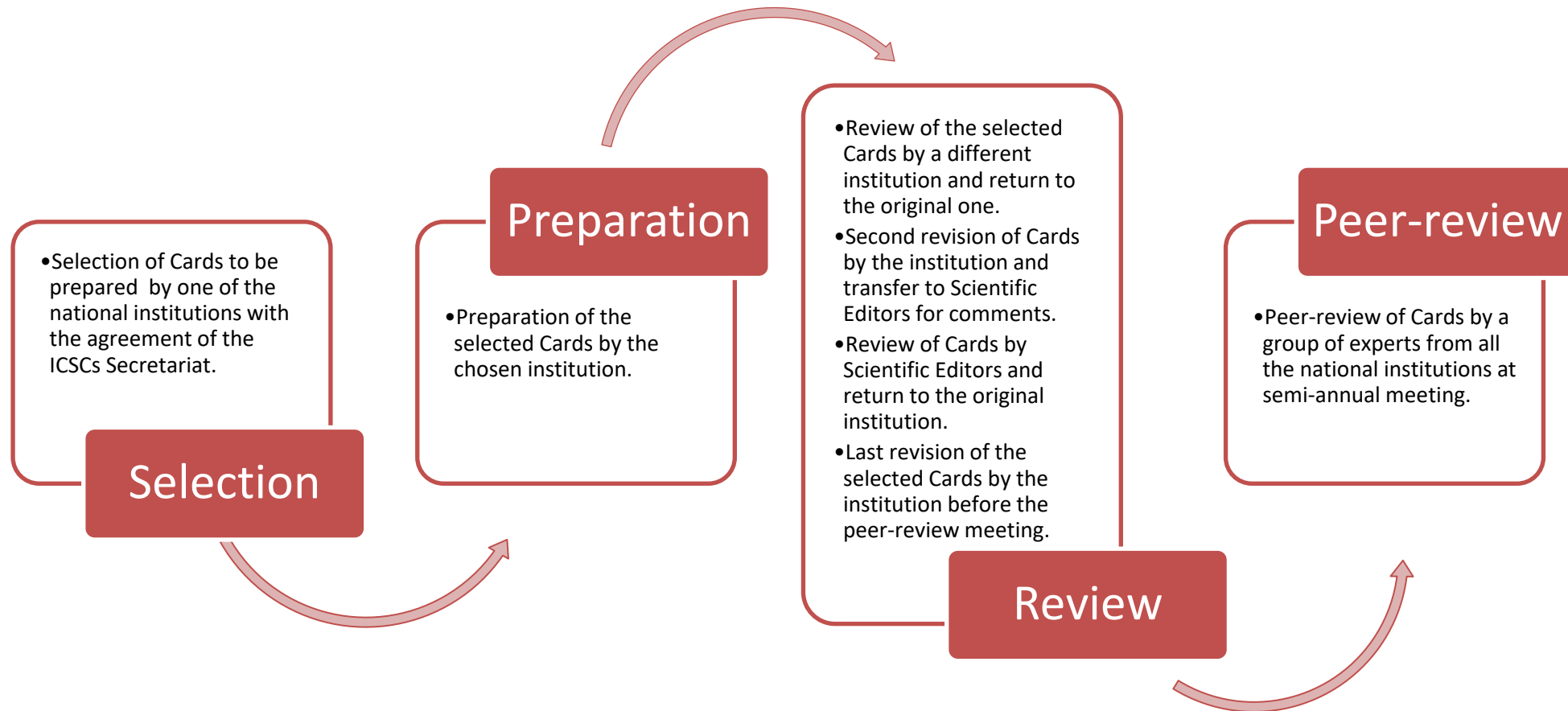
NITRIC ACID (> 70% in water)		ICSC: 0183
<b>PHYSICAL &amp; CHEMICAL INFORMATION</b>		
<p><b>Physical State; Appearance</b> COLOURLESS-TO-YELLOW LIQUID WITH PUNGENT ODOUR.</p> <p><b>Physical dangers</b> No data.</p> <p><b>Chemical dangers</b> Decomposes on warming. This produces toxic and irritating fumes and gases including nitrogen oxides. The substance is a strong oxidant. It reacts violently with combustibles and reducing materials, such as turpentine, charcoal and alcohol. The substance is a strong acid. It reacts violently with bases and is corrosive to metals. This produces flammable/explosive gas (hydrogen - see ICSC 0001). Reacts violently with organic compounds.</p>	<p>Formula: HNO<sub>3</sub> Molecular mass: 63.0 Boiling point: 121°C Melting point: -41.6°C Relative density (water = 1): 1.4 Solubility in water at 20°C: miscible Vapour pressure, kPa at 20°C: 6.4 Relative vapour density (air = 1): 2.2 Relative density of the vapour/air-mixture at 20°C (air = 1): 1.07 Octanol/water partition coefficient as log Pow: -0.21</p>	
<b>EXPOSURE &amp; HEALTH EFFECTS</b>		
<p><b>Routes of exposure</b> Serious local effects by all routes of exposure.</p> <p><b>Effects of short-term exposure</b> The substance is corrosive to the eyes, skin and respiratory tract. Corrosive on ingestion. Inhalation may cause asthma-like reactions (RADS). Exposure could cause asphyxiation due to swelling in the throat. Inhalation of high concentrations may cause pneumonitis and lung oedema. See Notes.</p>	<p><b>Inhalation risk</b> A harmful contamination of the air can be reached very quickly on evaporation of this substance at 20°C.</p> <p><b>Effects of long-term or repeated exposure</b> Repeated or prolonged inhalation may cause effects on the teeth. This may result in tooth erosion. The substance may have effects on the upper respiratory tract and lungs. This may result in chronic inflammation of the respiratory tract and reduced lung function. Mists of this strong inorganic acid are carcinogenic to humans. See Notes.</p>	
<b>OCCUPATIONAL EXPOSURE LIMITS</b>		
<p>TLV: 2 ppm as TWA; 4 ppm as STEL EU-OEL: 2.6 mg/m<sup>3</sup>, 1 ppm as STEL</p>		
<b>ENVIRONMENT</b>		
<b>NOTES</b>		
<p>The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential. IARC considers mists of strong inorganic acid to be carcinogenic (group 1). However there is no information available on the carcinogenicity of other physical forms of this substance. Therefore no classification for carcinogenicity under GHS has been applied. NEVER pour water into this substance; when dissolving or diluting always add it slowly to the water. The odour warning when the exposure limit value is exceeded is insufficient. Rinse contaminated clothing with plenty of water because of fire hazard.</p>		
<b>ADDITIONAL INFORMATION</b>		
<p><b>EC Classification</b> Symbol: O, C, R: 8-35; S: (1/2)-23-26-36-45; Note: B</p>		
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# Production and access of ICSCs





## How are ICSCs produced?



## ▶ Are ICSCs authoritative?

- ▶ The international peer-review process followed in the preparation of ICSCs ensures the authoritative nature of the Cards and represents a significant asset of the ICSCs as opposed to other packages of information.



# Are ICSCs similar to Material Safety Data Sheets (MSDS)?

- ▶ MSDS and the ICSCs are not the same.
- ▶ The MSDS, in many instances, may be technically very complex and too extensive for shop floor use, and secondly it is a management document.
- ▶ The ICSCs, on the other hand, set out peer-reviewed information about chemicals in a more concise manner.

IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND COMPANY / UNDERTAKING				
1.1 Product Description:	Poly(vinyl Chloride (Homopolymer Resin))			
1.2 Product Name:				
1.3 Company:				
1.4 Telephone No:				
Fax No:				
COMPOSITION / INFORMATION ON INGREDIENTS				
Ingredient	CAS No.	WW%	Hazard Symbol	Risk Phrase
Poly(vinyl chloride (PVC))	9002-86-2	>99.5%		
Chloroethylene (VCM)	75-01-4	<10 ppm	F+T	R6, S12
HAZARDS IDENTIFICATION				
PVC resin contains no ingredients classified as hazardous under the Chemicals Hazard Information and Packaging Regulations. High concentrations of dust may be irritant to the respiratory tract. Incorrect processing may lead to thermal decomposition which will evolve toxic and corrosive vapours.				
FIRST AID MEASURES				
Inhalation	If the product is burning and inhalation of fumes occur: Move to fresh air and rest. Obtain medical attention immediately.			
Skin Contact	Wash off with water.			
Eye Contact	Rinse immediately with water for 15-20 minutes. If irritation continues obtain medical attention.			
Ingestion	Do not induce vomiting. Wash out mouth with water and give water to drink (if permitted). Obtain medical attention if ill effects occur.			
Medical Information	Show this Datasheet to the doctor.			
FIRE FIGHTING MEASURES				
Remove uninvolved people from the vicinity of the fire.				
Extinguishing Media	Extinguish with powder/carbon dioxide/water/mist. Check for special circumstances, e.g. live electrical equipment that may affect the choice of extinguisher.			
Fire and Explosion Hazards	Toxic and corrosive gases are formed by heating. In contact with sources of ignition high concentrations of dust may form explosive mixtures in air.			
Other Information	In major fire situations self contained breathing apparatus should be worn.			
ACCIDENTAL RELEASE MEASURES				
Wear appropriate personal protective equipment. Vacuum up or mop up with water and sweep up into container for disposal/recycling. Prevent material from entering drains. Alert appropriate regulatory authority for uncontrolled discharges into watercourses.				
HANDLING AND STORAGE				
Handling	Avoid the build up of static charges during bulk transfer of material. Avoid dust generation.			
Storage	Keep in a dry well ventilated area. Keep away from heat and sources of ignition.			
EXPOSURE CONTROL / PERSONAL PROTECTION				
Personal Protection	Wear suitable industrial protective clothing. Wear dust mask and eye protection if necessary. Observe good industrial hygiene.			
Exposure Controls	Remove all sources of ignition. Ensure good ventilation. Provide earthing for equipment. Occupational Exposure Limits (ref UK EH40): (OES Dust: 10mg/m <sup>3</sup> Total Inhalable dust by (TW)4 engine? Respirable dust W in TW4)			
Decomposition Products	(OES Hydrogen chloride - STEL (15 min): 5ppm (OES Carbon monoxide - STEL (15 min): 200ppm)			
PHYSICAL AND CHEMICAL PROPERTIES				
Appearance	Powder			
Colour	White			
Odour	No smell			
Solubility	Soluble in: Aromatic hydrocarbon. Insoluble in: Water			
Melting point/range:	>180°C			
Density:	>1.4g/cm <sup>3</sup>			
Flash point:	>350°C			
Ignition temp.:	>450°C			
Decomposition Temperature	180°C			
Particle Size:	60-200 microns			
Density: powder	450-650kg/m <sup>3</sup>			
STABILITY AND REACTIVITY				
Conditions to Avoid	Sources of ignition			
Materials to Avoid	Avoid contact with strong acids and bases. Avoid strong oxidising agents.			
Hazardous Decomposition Products	Thermal decomposition will evolve corrosive/ toxic vapours of Hydrogen Chloride and toxic vapours of Carbon Monoxide.			
TOXICOLOGICAL INFORMATION				
No toxic effects are anticipated under normal conditions of storage and use. See sections 6 and 10 regarding toxic effects of decomposition products.				
ECOLOGICAL INFORMATION				
PVC resins are considered to be ecologically benign. They are not readily decomposed by weathering or by micro-organisms.				
DISPOSAL CONSIDERATIONS				
If possible recycle otherwise disposal should be in accordance with local or national legislation. Bury in an authorised landfill site or incinerate under approved controlled conditions.				
TRANSPORT CONSIDERATIONS				
Not classified as hazardous for transport.				
REGULATORY INFORMATION				
PVC resin has been classified under the Chemicals Hazard Information and Packaging Regulations, CHIP2, 1995 and Amendment Regulations.				

Source: Nylon Polymer

# How are the ICSCs translated?

ICSCs are prepared in English

National institutions translate the Cards into different languages



Standard sentences are used in ICSCs to facilitate the computer-aided translation

1500 standard sentences  
4300 standard parameters

ICSCs translated in different languages

**Sentence group: Corrosion and irritation [edit group]**

**Sentences in this group**

- > Blistering agent.
- > Corrosive on ingestion.
- > Corrosive.
- > Exposure to sun may enhance the irritating effect of this substance.
- > May cause mechanical irritation\* to the [P1, ] and [ ]
- > The [P1] are corrosive to the [P2, ] and [ ]
- > The [P1] are[\*] [P2] irritating to the [P3, ] and [ ]
- > The [P1] is[\*] [P2] corrosive to the [P3, ] and [ ]
- > The [P1] is[\*] [P2] irritating to the [P3, ] and [ ]
- > The liquid is corrosive.
- > Water sol.

Parameter	Allowed Value
P1	liquid
P2	severely

**Sentence group: Corrosion and irritation [edit group]**

**Sentences in this group**

- > Blistering agent.
- > Corrosive on ingestion.
- > Corrosive.
- > Exposure to sun may enhance the irritating effect of this substance.
- > May cause mechanical irritation\* to the [P1, ] and [ ]
- > The [P1] are corrosive to the [P2, ] and [ ]
- > The [P1] are[\*] [P2] irritating to the [P3, ] and [ ]
- > The [P1] is[\*] [P2] corrosive to the [P3, ] and [ ]
- > The [P1] is[\*] [P2] irritating to the [P3, ] and [ ]
- > The liquid is corrosive.
- > Water solutions may cause skin blisters.

Parameter	Allowed Value
P1	liquid
P2	substance
P3	substance at very high concentrations
P1	substance, as a liquid
P1	vapour
P1	vapour at high levels
P2	slightly
P2	moderately
P2	severely
P3	digestive tract
P3	eyes
P3	gastrointestinal tract
P3	nose
P3	possibly the respiratory tract
P3	respiratory tract
P3	skin
P3	skin (technical grade)
P3	throat
P3	upper respiratory tract

**Figure 3.** Sample of standard sentences and parameters: "The substance, as a liquid, is severely corrosive to the skin."

Are ICSC similar to Material Safety Data Sheets?  
Great similarities exist between the various headings of the ICSC and the manu-



## ▶ Which languages are ICSCs available in?

### ▶ English

- ▶ Français/French
- ▶ Español/Spanish
- ▶ Русский/Russian
- ▶ 中文/Chinese
- ▶ Italiano/Italian
- ▶ 日本語/Japanese
- ▶ Suomi/Finnish
- ▶ Magyar/Hungarian
- ▶ Polski/Polish
- ▶ עברית/Hebrew
- ▶ 한국어/Korean
- ▶ فارسی/Persian

# Where can I find ICSCs?

- ▶ The Cards can be accessed in all available languages, free of charge, on the ILO website
- ▶ They can be displayed in HTML or printed as PDFs.

▶ [www.ilo.org/icsc](http://www.ilo.org/icsc)

## Occupational Safety and Health >

- News and statements >
- Areas of work > [-]
- Sectors and industries >
- Knowledge base > [-]
- Standards and other instruments > [-]
- Policy documents >
- Publications and technical tools**
- Training materials >
- Promotional materials > [-]
- Useful links >
- Country profiles > [-]
- CIS Network >
- Events and training > [-]
- Projects >

ILO home > About the ILO > How the ILO works > Departments and offices > Occupational Safety and Health > Knowledge base > Publications and technical tools > **International Chemical Safety Cards (ICSCs) ...**

### ICSC database

## International Chemical Safety Cards (ICSCs)

The International Chemical Safety Cards (ICSCs) are data sheets intended to provide essential safety and health information on chemicals in a clear and concise way. The primary aim of the Cards is to promote the safe use of chemicals in the workplace. The main target users are workers and those responsible for occupational safety and health. The ICSCs project is a common undertaking between the International Labour Organization (ILO) and the World Health Organization (WHO), with the cooperation of the European Commission.

**Type:** Database

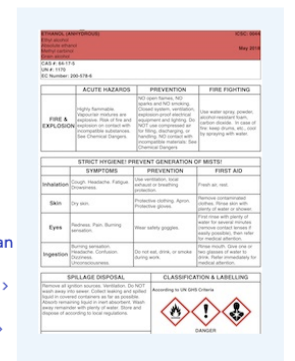
### ICSCs database

To date, more than 1,700 Cards are available and hosted in the ICSCs database. The database is available in:

- English >
- Français/French >
- Español/Spanish >
- Русский/Russian >
- 中文/Chinese >
- Italiano/Italian >
- 日本語/Japanese >
- Suomi/Finnish >
- Magyar/Hungarian >
- Polski/Polish >
- עברית/Hebrew >
- 한국어/Korean >
- فارسی/Persian >

ICSCs are prepared and peer-reviewed in English by a consortium of scientists from specialized scientific institutions concerned with occupational safety and health in different countries. Subsequently, national institutions translate the Cards into different languages.

The process of peer review ensures the authoritative nature of the information provided in the Cards. Existing ICSCs are updated periodically to take account of the latest scientific developments. New Cards are proposed by countries or stakeholder groups.



ACUTE HAZARDS	PREVENTION	FIRE FIGHTING
<b>FLAME &amp; EXPLOSION</b>	<ul style="list-style-type: none"> <li>Do not open flames, hot surfaces, electrical equipment, or any other source of ignition.</li> <li>Use explosion-proof electrical, ventilation, and lighting equipment in explosive atmospheres.</li> <li>Use flameproof or intrinsically safe electrical equipment.</li> <li>Use explosion-proof tools.</li> </ul>	<ul style="list-style-type: none"> <li>Use water spray, carbon dioxide, or foam extinguishers.</li> <li>Use dry powder extinguishers for flammable solids.</li> <li>Use dry powder extinguishers for flammable liquids.</li> <li>Use dry powder extinguishers for flammable gases.</li> <li>Use dry powder extinguishers for flammable solids.</li> <li>Use dry powder extinguishers for flammable liquids.</li> <li>Use dry powder extinguishers for flammable gases.</li> </ul>
SYMPTOMS	PREVENTION	FIRST AID
<ul style="list-style-type: none"> <li>Headache, dizziness, fatigue, nausea, vomiting, diarrhoea.</li> </ul>	<ul style="list-style-type: none"> <li>Use explosion-proof electrical, ventilation, and lighting equipment in explosive atmospheres.</li> <li>Use flameproof or intrinsically safe electrical equipment.</li> <li>Use explosion-proof tools.</li> </ul>	<ul style="list-style-type: none"> <li>Remove contaminated clothing.</li> <li>Wash skin with plenty of water.</li> <li>Seek medical attention if symptoms persist.</li> </ul>
SYMPTOMS	PREVENTION	FIRST AID
<ul style="list-style-type: none"> <li>Headache, dizziness, fatigue, nausea, vomiting, diarrhoea.</li> </ul>	<ul style="list-style-type: none"> <li>Use explosion-proof electrical, ventilation, and lighting equipment in explosive atmospheres.</li> <li>Use flameproof or intrinsically safe electrical equipment.</li> <li>Use explosion-proof tools.</li> </ul>	<ul style="list-style-type: none"> <li>Remove contaminated clothing.</li> <li>Wash skin with plenty of water.</li> <li>Seek medical attention if symptoms persist.</li> </ul>
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### Tools

A A+ A++ Print >

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### Key resources

# Searching for ICSCs

ICSC database

## International Chemical Safety Cards (ICSCs)

Search for an ICSC Card

Chemical name or synonym

CAS number

UN number

ICSC number

Text search

search »

### ICSC Cards found for your search

0056 > MERCURY

Quicksilver; Liquid silver

0541 > PHENYLMERCURIC NITRATE

Mercuriphenyl nitrate; Merphenyl nitrate; Mercury, Nitratophenyl

0978 > MERCURIC ACETATE

Acetic acid, mercury(2+) salt; Mercury di(acetate)

0979 > MERCURIC CHLORIDE

Mercury dichloride; Mercury (II) chloride

0980 > MERCURIC NITRATE

Mercury (II) nitrate; Mercury dinitrate

0981 > MERCURIC OXIDE

Mercury (II) oxide

0982 > MERCURIC SULFATE

Mercury(II) sulfate; Mercuric bisulfate

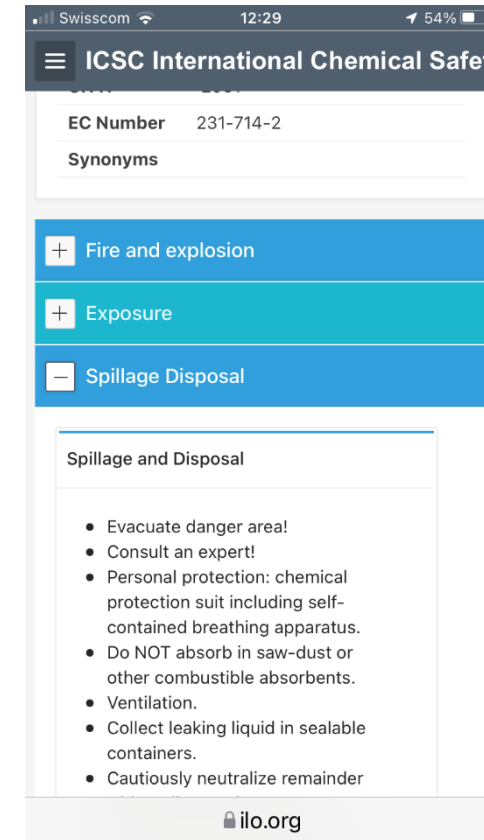
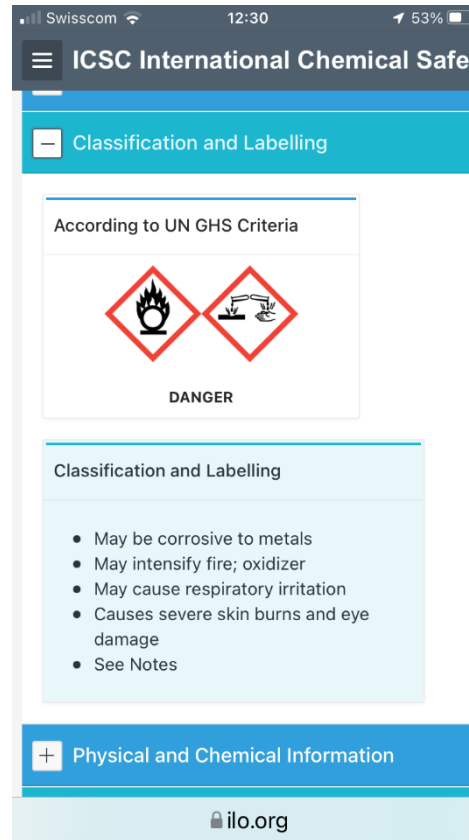
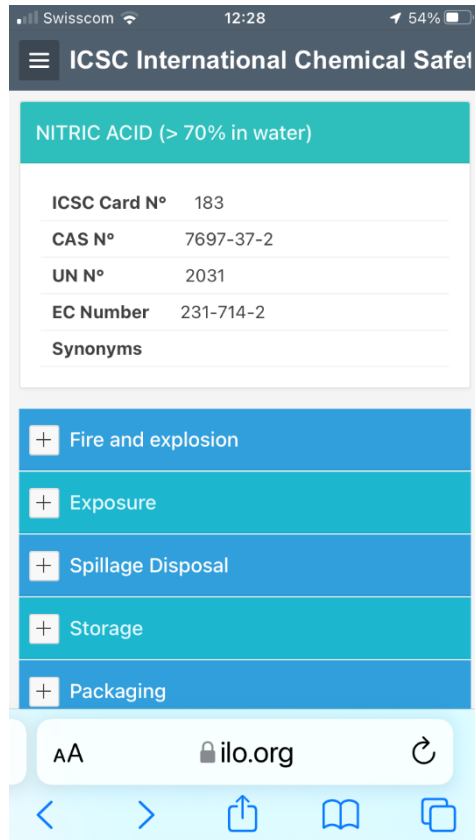
0984 > MERCUROUS CHLORIDE

Dimercury dichloride; Calomel; Chloromercury; Mercury(I) chloride

1304 > DIMETHYL MERCURY

Mercury, dimethyl; Dimethylmercury

# An ICSCs mobile app is currently in development







AA

ilo.org



# ☰ ICSC International Chemical Safety Cards



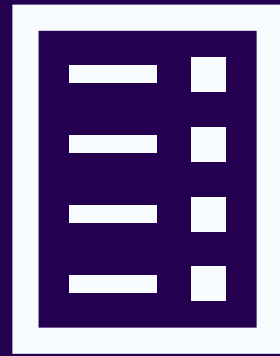
## NITRIC ACID (> 70% in water)

ICSC Card N°	CAS N°	UN N°	EC Number	Synonyms
183	7697-37-2	2031	231-714-2	

Fire and explosion

Exposure

# End of session activity




Quiz

Is this ICSC for:

- a) Nitric acid
- b) Lead
- c) Mercury
- d) Benzene

	ACUTE HAZARDS	PREVENTION	FIRE FIGHTING
<b>FIRE &amp; EXPLOSION</b>	Highly flammable. Vapour/air mixtures are explosive. Risk of fire and explosion. See Chemical Dangers.	NO open flames, NO sparks and NO smoking. Closed system, ventilation, explosion-proof electrical equipment and lighting. Do NOT use compressed air for filling, discharging, or handling. Use non-sparking handtools. Prevent build-up of electrostatic charges (e.g., by grounding).	Use foam, water spray, carbon dioxide, powder. In case of fire: keep drums, etc., cool by spraying with water.

AVOID ALL CONTACT!			
	SYMPTOMS	PREVENTION	FIRST AID
<b>Inhalation</b>	Dizziness. Drowsiness. Headache. Nausea. Shortness of breath. Convulsions. Unconsciousness.	Use ventilation, local exhaust or breathing protection.	Fresh air, rest. Refer for medical attention.
<b>Skin</b>	MAY BE ABSORBED! Dry skin. Redness. Pain. Further see Inhalation.	Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse skin with plenty of water or shower. Refer for medical attention .
<b>Eyes</b>	Redness. Pain.	Wear face shield or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.
<b>Ingestion</b>	Abdominal pain. Sore throat. Vomiting. Further see Inhalation.	Do not eat, drink, or smoke during work.	Rinse mouth. Do NOT induce vomiting. Refer for medical attention .

SPILLAGE DISPOSAL	CLASSIFICATION & LABELLING
Remove all ignition sources. Evacuate danger area! Consult an expert! Personal protection: complete protective clothing including self-contained breathing apparatus. Do NOT wash away into sewer. Do NOT let this chemical enter the environment. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.	<p>According to UN GHS Criteria</p>  <p><b>DANGER</b></p> <p>Highly flammable liquid and vapour May be fatal if swallowed and enters airways Causes skin irritation Causes serious eye irritation May cause genetic defects May cause cancer Causes damage to the bone marrow and the central nervous system through prolonged or repeated exposure Harmful to aquatic life with long lasting effects</p>
<b>STORAGE</b>	
Fireproof. Separated from food and feedstuffs, oxidants and halogens. Store in an area without drain or sewer access.	
<b>PACKAGING</b>	
Do not transport with food and feedstuffs.	<p><b>Transportation</b> <b>UN Classification</b> UN Hazard Class: 3; UN Pack Group: II</p>

Is this ICSC for:

- a) Nitric acid
- b) Lead
- c) Mercury
- d) Benzene

PHYSICAL & CHEMICAL INFORMATION	
<p><b>Physical State; Appearance</b> ODOURLESS HEAVY MOBILE SILVERY LIQUID METAL.</p> <p><b>Physical dangers</b></p> <p><b>Chemical dangers</b> Upon heating, toxic fumes are formed. Reacts violently with ammonia, halogens, acetylene and amines. This generates fire and explosion hazard. Attacks aluminium and many other metals. This produces amalgams.</p>	<p>Formula: Hg Atomic mass: 200.6 Boiling point: 357°C Melting point: -39°C Density: 13.5 g/cm<sup>3</sup> Solubility in water: none Vapour pressure, Pa at 20°C: 0.26 Relative vapour density (air = 1): 6.93 Relative density of the vapour/air-mixture at 20°C (air = 1): 1.009</p>
EXPOSURE & HEALTH EFFECTS	
<p><b>Routes of exposure</b> The substance can be absorbed into the body by inhalation of its vapour and through the skin also as a vapour.</p> <p><b>Effects of short-term exposure</b> The substance is irritating to the skin. Inhalation of high concentrations of the vapour may cause pneumonitis. This may result in death. The substance may cause effects on the central nervous system and kidneys. This may result in tremors and tissue lesions. The effects may be delayed. Medical observation is indicated.</p>	<p><b>Inhalation risk</b> A harmful contamination of the air can be reached very quickly on evaporation of this substance at 20°C.</p> <p><b>Effects of long-term or repeated exposure</b> The substance may have effects on the central nervous system and kidneys. This may result in irritability, emotional instability, tremors, mental and memory disturbances and speech disorders. May cause inflammation and discoloration of gums. Cumulative effects are possible. Animal tests show that this substance possibly causes toxic effects upon human reproduction.</p>
OCCUPATIONAL EXPOSURE LIMITS	
<p>TLV: 0.025 mg/m<sup>3</sup>, as TWA; (skin); A4 (not classifiable as a human carcinogen); BEI issued. EU-OEL: 0,02 mg/m<sup>3</sup> as TWA. MAK: (inhalable fraction): 0.02 mg/m<sup>3</sup>; peak limitation category: II(8); skin absorption (H); sensitization of skin (SH); carcinogen category: 3; pregnancy risk group: D</p>	
ENVIRONMENT	
<p>The substance is very toxic to aquatic organisms. Bioaccumulation of this chemical may occur in fish and seafood.</p>	
NOTES	
<p>Depending on the degree of exposure, periodic medical examination is suggested. There is no odour warning even when toxic concentrations are present. Do NOT take working clothes home. Isolate contaminated clothing by sealing in a bag or other container. Other UN number: 3506 Mercury contained in manufactured articles.</p>	
ADDITIONAL INFORMATION	
<p><b>EC Classification</b> H330; H372; H400; H410; H360D</p>	



Is this ICSC for:

- a) DDT
- b) Arsenic
- c) Chlorine
- d) Chrysotile


	ACUTE HAZARDS	PREVENTION	FIRE FIGHTING
<b>FIRE &amp; EXPLOSION</b>	Not combustible.		In case of fire in the surroundings, use appropriate extinguishing media.
<b>PREVENT DISPERSION OF DUST! AVOID ALL CONTACT!</b>			
	SYMPTOMS	PREVENTION	FIRST AID
<b>Inhalation</b>	Cough.	Use breathing protection. Use closed system and ventilation.	Fresh air, rest.
<b>Skin</b>		Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse skin with plenty of water or shower.
<b>Eyes</b>		Wear safety goggles or eye protection in combination with breathing protection if powder.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.
<b>Ingestion</b>		Do not eat, drink, or smoke during work. Wash hands before eating.	Rinse mouth.
SPILLAGE DISPOSAL		CLASSIFICATION & LABELLING	
Evacuate danger area! Consult an expert! Personal protection: complete protective clothing including self-contained breathing apparatus. Vacuum spilled material with specialist equipment. Then store and dispose of according to local regulations.		<b>According to UN GHS Criteria</b>   <b>DANGER</b>  May cause cancer Causes damage to the lungs through prolonged or repeated exposure if inhaled	
STORAGE		<b>Transportation</b> <b>UN Classification</b> UN Hazard Class: 9; UN Pack Group: III	
Well closed.			
PACKAGING			
  Prepared by an international group of experts on behalf of ILO and WHO, with the financial assistance of the European Commission. © ILO and WHO 2021		 European Commission	
<b>ICSC: 0014</b>			
PHYSICAL & CHEMICAL INFORMATION			
<b>Physical State; Appearance</b> WHITE, GREY, GREEN OR YELLOWISH FIBROUS SOLID.		Formula: $Mg_3Si_2H_4O_9$ / $Mg_3(Si_2O_5)(OH)_4$ Molecular mass: 554 Melting point: No melting point; decomposes (see Notes) Density: 2.2-2.6 g/cm <sup>3</sup> Solubility in water: none	
<b>Physical dangers</b>			
<b>Chemical dangers</b>			
EXPOSURE & HEALTH EFFECTS			
<b>Routes of exposure</b> The substance can be absorbed into the body by inhalation.		<b>Inhalation risk</b> A harmful concentration of airborne particles can be reached quickly when dispersed.	
<b>Effects of short-term exposure</b>		<b>Effects of long-term or repeated exposure</b> Repeated or prolonged inhalation may cause asbestosis (fibrosis of the lungs), pleural plaques, thickening and effusions. This substance is carcinogenic to humans. This substance causes cancer of the lung, mesothelioma, cancer of the larynx, and cancer of the ovary in humans. There is limited evidence that this substance causes colorectal cancer or cancer of the pharynx or stomach.	

Is this ICSC for:

- a) Benzene
- b) PFOA
- c) DDT
- d) Hydrogen

	ACUTE HAZARDS	PREVENTION	FIRE FIGHTING
<b>FIRE &amp; EXPLOSION</b>	Not combustible. Gives off irritating or toxic fumes (or gases) in a fire. Risk of fire and explosion on contact with bases, oxidants or reducing agents.	NO contact with incompatible substances. See Chemical Dangers.	Use water spray, carbon dioxide, dry powder, foam.

AVOID ALL CONTACT! IN ALL CASES CONSULT A DOCTOR!			
	SYMPTOMS	PREVENTION	FIRST AID
<b>Inhalation</b>	Cough. Sore throat.	Use local exhaust or breathing protection.	Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.
<b>Skin</b>	MAY BE ABSORBED! Redness. Pain.	Protective gloves. Protective clothing.	Wear protective gloves when administering first aid. Remove contaminated clothes. Rinse and then wash skin with water and soap.
<b>Eyes</b>	Redness. Pain.	Wear safety goggles or eye protection in combination with breathing protection if powder.	Rinse with plenty of water for several minutes (remove contact lenses if easily possible). Refer immediately for medical attention.
<b>Ingestion</b>	Abdominal pain. Nausea. Vomiting. Diarrhoea.	Do not eat, drink, or smoke during work.	Rinse mouth. Give one or two glasses of water to drink. Refer for medical attention .

SPILLAGE DISPOSAL	CLASSIFICATION & LABELLING
Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Sweep spilled substance into covered non-metallic containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.	<p>According to UN GHS Criteria</p>  <p><b>DANGER</b></p> <p>Harmful if swallowed Toxic if inhaled Causes serious eye irritation May cause damage to immune system and liver through prolonged or repeated exposure May damage fertility or the unborn child May cause harm to breast-fed children Suspected of causing cancer</p> <p><b>Transportation</b> <b>UN Classification</b> UN Hazard Class: 8; UN Pack Group: III</p>
<b>STORAGE</b>	
Store only in original container. Separated from food and feedstuffs and incompatible materials. See Chemical Dangers.	
<b>PACKAGING</b>	
Do not transport with food and feedstuffs. Unbreakable packaging. Put breakable packaging into closed unbreakable container.	

Is this ICSC for:

- a) Carbon monoxide
- b) Neon
- c) Benzidine
- d) Potassium

PHYSICAL & CHEMICAL INFORMATION	
<p><b>Physical State; Appearance</b> ODOURLESS TASTELESS COLOURLESS COMPRESSED GAS.</p> <p><b>Physical dangers</b> The gas mixes well with air, explosive mixtures are easily formed. The gas penetrates easily through walls and ceilings.</p> <p><b>Chemical dangers</b> May react vigorously with oxygen, acetylene, chlorine, fluorine or nitrous oxide.</p>	<p>Formula: CO Molecular mass: 28.0 Boiling point: -191°C Melting point: -205°C Solubility in water, ml/100ml at 20°C: 2.3 Relative vapour density (air = 1): 0.97 Flash point: Flammable gas Auto-ignition temperature: 605°C Explosive limits, vol% in air: 12.5-74.2 Minimum ignition energy: &lt;0.3mJ</p>

EXPOSURE & HEALTH EFFECTS	
<p><b>Routes of exposure</b> The substance can be absorbed into the body by inhalation.</p> <p><b>Effects of short-term exposure</b> The substance may cause effects on the blood. This may result in carboxyhaemoglobinemia and cardiac disorders. Exposure at high levels could cause death. Medical observation is indicated.</p>	<p><b>Inhalation risk</b> A harmful concentration of this gas in the air will be reached very quickly on loss of containment.</p> <p><b>Effects of long-term or repeated exposure</b> The substance may have effects on the cardiovascular system and central nervous system. May cause toxicity to human reproduction or development.</p>

OCCUPATIONAL EXPOSURE LIMITS
<p>TLV: 25 ppm as TWA; BEI issued. MAK: 35 mg/m<sup>3</sup>, 30 ppm; peak limitation category: II(2); pregnancy risk group: B. EU-OEL: 23 mg/m<sup>3</sup>, 20 ppm as TWA; 117 mg/m<sup>3</sup>, 100 ppm as STEL</p>

# Key ILO resources

- ▶ [International Chemical Safety Cards \(ICSCs\)](#)
- ▶ [The GHS in the world of work: Mapping synergies between ILO Instruments and the Globally Harmonized System of Classification and Labelling of Chemicals \(GHS\).](#)
- ▶ [Exposure to hazardous chemicals at work and resulting health impacts: A global review \(2021\).](#)
- ▶ [ILO Instruments on Chemical Safety – Analysis and synergies with other international frameworks on the sound management of chemicals \(2020\).](#)
- ▶ [The Sound Management of Chemicals and Waste in the World of Work \(2019\).](#)
- ▶ [All You Need to Know: Convention No. 170.](#)
- ▶ [Guidelines on occupational safety and health management systems \(2001\).](#)
- ▶ [Major hazard control: A practical manual \(1993\).](#)
- ▶ [Safety in the use of chemicals at work: code of practice \(1991\).](#)