Formic Acid 85%

SECTION 1. IDENTIFICATION

Product Identifier	Formic Acid 85%
Other Means of Identification	Aminic acid, Formylic acid
Product Code(s)	FO4110
Product Family	Organic solution
Recommended Use	Laboratory and industrial use.
Restrictions on Use	None known.
Supplier Identifier	Alphachem Limited, 2485 Milltower Court, Mississauga, Ontario, L5N 5Z6, (905) 821-2995
Emergency Phone No.	CANUTEC CANADA, 613-996-6666, 24 Hours
SDS No.	0268

SECTION 2. HAZARD IDENTIFICATION

Classified according to Canada's Hazardous Products Regulations (WHMIS 2015) and the US Hazard Communication Standard (HCS 2012).

Classification

Flammable liquid - Category 4; Corrosive to metals - Category 1; Acute toxicity (Inhalation) - Category 3; Skin corrosion - Category 1A; Serious eye damage - Category 1; Specific target organ toxicity (repeated exposure) - Category 2

Label Elements

Signal Word:
Danger

Hazard Statement(s):
Combustible liquid.
Toxic if swallowed or if inhaled.
Corrosive to the respiratory tract.
Causes severe skin burns and eye damage.
Causes damage to organs.

Precautionary Statement(s):
Obtain special instructions before use.
Do not spray on an open flame or other ignition source.
Avoid breathing dust/fume/gas/mist/vapours/spray.
Do not get in eyes, on skin, or on clothing.
Wash hands and skin thoroughly after handling.

Use only outdoors or in a well-ventilated area.
Wear eye protection/face protection.
Wear protective gloves/protective clothing.
IF ON SKIN: Wash with plenty of water/
If skin irritation occurs: Get medical advice/attention.
IF INHALED: Call a POISON CENTRE/doctor/ if you feel unwell.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
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/attention.
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
Immediately call a POISON CENTRE or doctor.
Call a POISON CENTRE or doctor if you feel unwell.

Other Hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture:

Chemical Name	CAS No.	%	Other Identifiers	Other Names
Formic acid	64-18-6	83 - 88	Aminic acid, Formylic acid	
Water	7732-18-5	12 - 17	Dihydrogen Oxide	

SECTION 4. FIRST-AID MEASURES

First-aid Measures

Inhalation

Take precautions to ensure your own safety before attempting rescue (e.g. wear appropriate protective equipment). Remove source of exposure or move to fresh air. If breathing is difficult, trained personnel should administer emergency oxygen if advised to do so by Poison Centre or doctor. DO NOT move about unnecessarily. Symptoms of pulmonary edema may be delayed. Keep at rest in a position comfortable for breathing. If exposed or concerned, call a Poison Centre or doctor.

Skin Contact

Avoid direct contact. Wear chemical protective clothing if necessary. Immediately rinse skin with lukewarm, gently flowing water for at least 30 minutes. DO NOT INTERRUPT FLUSHING. If it can be done safely, continue flushing during transport to hospital.

Eye Contact

Avoid direct contact. Wear chemical protective gloves if necessary. Immediately rinse the contaminated eye(s) with lukewarm, gently flowing water for at least 30 minutes, while holding the eyelid(s) open. Neutral saline solution may be used as soon as it is available. DO NOT INTERRUPT FLUSHING. If necessary, continue flushing during transport to hospital. Take care not to rinse contaminated water into the unaffected eye or onto the face.

Ingestion

Never give anything by mouth if person is rapidly losing consciousness, or is unconscious or convulsing. Do not induce vomiting. If vomiting occurs naturally, lie on your side in the recovery position. Rinse mouth with water again. Rinse mouth with water. Immediately call a Poison Centre or doctor. Specific treatment is required.

First-aid Comments

Some of the first-aid procedures recommended here require advanced first-aid training. If exposed or concerned, get medical advice or attention. Get medical advice or attention if you feel unwell or are concerned.

Most Important Symptoms and Effects, Acute and Delayed

If on skin: contact can cause pain, redness, burns, and blistering. Permanent scarring can result. If in eyes: contact causes severe burns with redness, swelling, pain and blurred vision. Permanent damage including blindness can result. If inhaled: can cause severe lung injury.

Immediate Medical Attention and Special Treatment

Special Instructions

General advice, consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media

Carbon dioxide, dry chemical powder, appropriate foam, water spray or fog.

Unsuitable Extinguishing Media

None known.

Specific Hazards Arising from the Product

Combustible liquid. Can ignite if heated. Releases vapour that can form explosive mixture with air at or above the flash point. Closed containers may rupture violently when heated releasing contents.
In a fire, the following hazardous materials may be generated: very toxic carbon monoxide, carbon dioxide.

Special Protective Equipment and Precautions for Fire-fighters

Evacuate area. Fight fire from a safe distance or a protected location. Approach fire from upwind to avoid hazardous vapours or gases. Stop leak before attempting to put out the fire. Product could form an explosive mixture and reignite. If the leak cannot be stopped, let the fire burn itself out. Use water spray to flush spills away from ignition sources. For a massive fire, immediately evacuate the area and use unmanned hose holder or monitor nozzles. Before entry, especially into confined areas, use an appropriate monitor to check for: toxic gases or vapours, flammable or explosive atmosphere, sufficient oxygen. Dike and recover contaminated water for appropriate disposal.
Fire-fighters should enter area wearing specialized protective equipment. (Bunker Gear will not provide adequate protection.) chemical protective clothing (e.g. chemical splash suit) and positive pressure SCBA may be necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures

Emergency responders: use the personal protective equipment recommended in Section 8 of this safety data sheet. Evacuate the area immediately. Isolate the hazard area. Keep out unnecessary and unprotected personnel. Increase ventilation to area or move leaking container to a well-ventilated and secure area. Eliminate all ignition sources if safe to do so. Remove or isolate incompatible materials as well as other hazardous materials.

Environmental Precautions

Do not allow into any sewer, on the ground or into any waterway. If the spill is inside a building, prevent product from entering drains, ventilation systems and confined areas.

Methods and Materials for Containment and Cleaning Up

Stop or reduce leak if safe to do so. Small spills or leaks: contain and soak up spill with absorbent that does not react with spilled product. Place used absorbent into suitable, covered, labelled containers for disposal. Flush spill area. Large spills or leaks: contact emergency services and manufacturer/supplier for advice.

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling

Wear personal protective equipment to avoid direct contact with this chemical. Do not get in eyes, on skin or on clothing. Only use where there is adequate ventilation. Immediately report leaks, spills or failures of the safety equipment (e.g. ventilation system). In the event of a spill or leak, exit the area immediately. Eliminate heat and ignition sources such as sparks, open flames, hot surfaces and static discharge. Post "No Smoking" signs. Do not weld, cut or perform hot work on empty container until all traces of product have been removed. Avoid ignition sources. Avoid generating vapours or mists. Prevent accidental contact with incompatible chemicals. Never add water to a corrosive. Always add corrosives slowly to COLD water. Keep containers tightly closed when not in use or empty.

Conditions for Safe Storage

Store in an area that is: cool, well-ventilated, out of direct sunlight and away from heat and ignition sources, separate

from incompatible materials (see Section 10: Stability and Reactivity). Protect from conditions listed in Conditions to Avoid in Section 10 (Stability and Reactivity). Store in the original, labelled, shipping container. Store in a closed container. Vent drums to prevent pressure buildup. Keep amount in storage to a minimum. Comply with all applicable health and safety regulations, fire and building codes.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

	ACGIH TLV®		OSHA PEL		AIHA WEEL	
Chemical Name	**TWA**	**STEL**	**TWA**	**Ceiling**	**8-hr TWA**	**TWA**
Formic acid	5 ppm	10 ppm	Not established			
Water	Not established		Not established			

Appropriate Engineering Controls

Use local exhaust ventilation and enclosure, if necessary, to control amount in the air. Use a corrosion-resistant exhaust ventilation system separate from other ventilation systems. Exhaust directly to the outside, taking any necessary precautions for environmental protection. Provide eyewash and safety shower if contact or splash hazard exists.

Individual Protection Measures

Eye/Face Protection

Wear chemical safety goggles and face shield when contact is possible.

Skin Protection

Wear chemical protective clothing e.g. gloves, aprons, boots.
Suitable materials are: neoprene rubber, Barrier® (PE/PA/PE), Tychem® BR/LV, Tychem® Responder, Tychem® TK.
The following materials should NOT be used: natural rubber, polyvinyl alcohol.

Respiratory Protection

Wear a NIOSH approved air-purifying respirator with an appropriate cartridge, wear a NIOSH approved air-purifying respirator with an organic vapour cartridge, wear a NIOSH approved air-purifying respirator with N100, R100, or P100 filter(s).

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Basic Physical and Chemical Properties

Appearance	Colourless liquid.
Odour	Pungent
Odour Threshold	13 - 340 ppm (detection) Not reliable.
pH	2.2 (1% solution)
Melting Point/Freezing Point	~ 8.2 ºC (46.8 ºF) (melting); Not available (freezing)
Initial Boiling Point/Range	100.8 ºC (213.4 ºF)
Flash Point	67 ºC (153 ºF)
Evaporation Rate	2.1
Flammability (solid, gas)	Not available
Upper/Lower Flammability or Explosive Limit	47.6% (upper); 14.9% (lower)
Vapour Pressure	0.0242 kPa at 20 ºC
Vapour Density (air = 1)	1.6
Relative Density (water = 1)	1.195 - 1.216
Solubility	Soluble in water; Soluble in all proportions in common organic solvents.

Partition Coefficient, n-Octanol/Water (Log Kow)	Not available
Auto-ignition Temperature	500 ºC (932 ºF)
Decomposition Temperature	~ 23 ºC (73 ºF)
Viscosity	Not available (kinematic); 1.4 mPa.s at 20 ºC (dynamic)

Other Information

Physical State Liquid

SECTION 10. STABILITY AND REACTIVITY

Reactivity

Not reactive under normal conditions of use.

Chemical Stability

Normally stable.

Possibility of Hazardous Reactions

None known.

Conditions to Avoid

Open flames, sparks, static discharge, heat and other ignition sources.

Incompatible Materials

Strong oxidizing agents (e.g. perchloric acid), strong bases (e.g. sodium hydroxide), strong acids (e.g. hydrochloric acid), oxidizing agents (e.g. peroxides).

Hazardous Decomposition Products

Very toxic carbon monoxide, carbon dioxide.

SECTION 11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure

Inhalation; skin contact; eye contact; ingestion.

Acute Toxicity

Chemical Name	LC50	LD50 (oral)	LD50 (dermal)
Formic acid	7.4 mg/L	730 mg/kg (rat)	Not available
Water	Not available	> 89840 mg/kg (rat)	Not available

Skin Corrosion/Irritation

Corrosive based on information for closely related materials. Contact can cause pain, redness, burns, and blistering. Permanent scarring can result.

Serious Eye Damage/Irritation

Causes serious eye damage based on skin corrosion information. Contact causes severe burns with redness, swelling, pain and blurred vision. Permanent damage including blindness can result.

STOT (Specific Target Organ Toxicity) - Single Exposure

Inhalation

Toxic, can cause death Causes severe nose and throat irritation. At high concentrations causes severe lung injury. Symptoms may include coughing, shortness of breath, difficult breathing and tightness in the chest. Symptoms may develop hours after exposure and are made worse by physical effort.

Skin Absorption

No information was located.

Ingestion

May cause harmful effects on the kidneys. Causes severe irritation or burns to the mouth, throat and stomach. Symptoms may include nausea, vomiting, stomach cramps and diarrhea.

Aspiration Hazard

No information was located.

STOT (Specific Target Organ Toxicity) - Repeated Exposure

Conclusions cannot be drawn from the limited studies available. May cause irritation of the respiratory system. May cause respiratory tract injury. Following skin contact: may cause dermatitis.

Respiratory and/or Skin Sensitization

Not known to be a respiratory sensitizer. Not known to be a skin sensitizer.

Carcinogenicity

Chemical Name	IARC	ACGIH®	NTP	OSHA
Formic acid	Not evaluated	Not designated	Not Listed	Not Listed
Water	Not Listed	Not Listed	Not Listed	Not Listed

Reproductive Toxicity

Development of Offspring

Not known to harm the unborn child.

Sexual Function and Fertility

Not known to cause effects on sexual function or fertility.

Effects on or via Lactation

No information was located.

Germ Cell Mutagenicity

Not known to be a mutagen.

Interactive Effects

:

No information was located.

SECTION 12. ECOLOGICAL INFORMATION

This section is not required by WHMIS. This section is not required by OSHA HCS 2012.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal Methods

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

SECTION 14. TRANSPORT INFORMATION

Regulation	UN No.	Proper Shipping Name	Transport Hazard Class(es)	Packing Group
Canadian TDG	UN1779	Formic Acid	8 (3)	II
Canadian TDG	UN1779	Formic Acid	8 (3)	II
IMO (Marine)	UN1779	Formic Acid	8	II

Environmental Hazards Not applicable

Special Precautions Not applicable

Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15. REGULATORY INFORMATION

Safety, Health and Environmental Regulations

Canada

Domestic Substances List (DSL) / Non-Domestic Substances List (NDSL)

All ingredients are listed on the DSL or are not required to be listed.

USA

Toxic Substances Control Act (TSCA) Section 8(b)

All ingredients are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.

SECTION 16. OTHER INFORMATION

NFPA Rating	**Health - 3 Flammability - 2 Instability - 0**
SDS Prepared By	Alphachem Limited
Phone No.	(905)-821-2995
Date of Preparation	December 10, 2015
Date of Last Revision	December 17, 2020
References	CHEMINFO database. Canadian Centre for Occupational Health and Safety (CCOHS). Eastman Chemical Company database.
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