

Issue Date 24-Apr-2015

Revision Date 04-Sep-2015

Version 3

1. IDENTIFICATION

Product identifier

Product Name Formic Acid 99% ACS

Other means of identification

Product Code 3506

UN/ID no. UN1779

Synonyms Methanoic Acid; Hydrogen Carboxylic Acid; Formylic Acid

Recommended use of the chemical and restrictions on use

Recommended Use Laboratory chemicals.

Uses advised against No information available

Details of the supplier of the safety data sheet

Manufacturer Address

Harrell Industries, Inc.
2495 Commerce Drive
Rock Hill, SC 29730

www.harrellindustries.com

Emergency telephone number

Company Phone Number 803-327-6335

Fax Number 803-327-7808

24 Hour Emergency Phone Number 800 633-8253 (PERS)

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Oral	Category 4
Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Skin corrosion/irritation	Category 1 Sub-category A
Serious eye damage/eye irritation	Category 1
Flammable liquids	Category 3

Label elements

Emergency Overview

Danger

Hazard statements

Harmful if swallowed

Harmful if inhaled

Causes severe skin burns and eye damage

Flammable liquid and vapor



Warning! Corrosive liquid and mist cause severe burns to all body tissue. May be fatal if swallowed. Harmful if inhaled; May cause lung damage. Vapor is irritating to eyes and respiratory tract. Flammable liquid and vapor.

Appearance Clear, colorless liquid

Physical state liquid

Odor Characteristic, pungent odor

Precautionary Statements - Prevention

Wash face, hands and any exposed skin thoroughly after handling
 Do not eat, drink or smoke when using this product
 Use only outdoors or in a well-ventilated area
 Do not breathe dust
 Wear protective gloves/protective clothing/eye protection/face protection
 Keep away from heat/sparks/open flames/hot surfaces. — No smoking
 Keep container tightly closed
 Ground/bond container and receiving equipment
 Use explosion-proof electrical/ventilating/lighting/equipment
 Use only non-sparking tools
 Take precautionary measures against static discharge

Precautionary Statements - Response

If SWALLOWED, call a POISON CENTER or doctor/physician.
 May cause permanent eye damage. Vapors and contact are irritating to eyes and could cause eye damage.
 Symptoms of redness, pain and severe burn can occur.
 Causes burns and corrosion of the mouth, throat, and esophagus, with immediate pain and difficulty swallowing. Other symptoms of abdominal pain, nausea, diarrhea, and vomiting can occur, leading to shortness of breath and death. Severe poisonings can cause shock and kidney damage.
 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
 Rinse mouth
 Do NOT induce vomiting
 In case of fire: Use CO₂, dry chemical, or foam for extinction

Precautionary Statements - Storage

Store locked up
 Store in a well-ventilated place. Keep cool

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

Not applicable

Other Information

Not applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance

Synonyms

Methanoic Acid; Hydrogen Carboxylic Acid; Formylic Acid.

Formula

HCO₂H

Chemical Name	CAS No.	Weight-%
Formic Acid	64-18-6	99

Water	7732-18-5	1
-------	-----------	---

4. FIRST AID MEASURES

Description of first aid measures

Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention.
Skin contact	Wash with soap and water. Wash contaminated clothing before reuse.
Inhalation	Remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen. Get medical attention for any breathing difficulty.
Ingestion	Do not induce vomiting unless directed by a doctor or poison control. Drink 1 or 2 glasses of water. Get medical attention immediately.

Most important symptoms and effects, both acute and delayed

Symptoms	Chronic: May cause skin irritations and burns. Prolonged or repeated exposure may cause lung and kidney damage. Aggravation of pre-existing conditions: Sensitization is rare, but may occur in persons previously sensitized to formaldehyde.
-----------------	--

Indication of any immediate medical attention and special treatment needed

Note to physicians	Treat symptomatically.
---------------------------	------------------------

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Dry chemical, Carbon dioxide, water spray or alcohol resistant foam.

Unsuitable extinguishing media Caution: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical

Thermal decomposition can lead to release of irritating gases and vapors. Above flash point, vapor-air mixtures are explosive, within flammable limits noted above. Sensitive to static discharge.

Explosion data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge Sensitive.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions	Remove all sources of ignition. Ventilate area of leak or spill. Keep unnecessary and unprotected people away from area of spill. Wear appropriate personal equipment.
-----------------------------	--

Environmental precautions

Environmental precautions	See Section 12 for additional ecological information.
----------------------------------	---

Methods and material for containment and cleaning up

Methods for containment	Contain and recover liquid when possible. Collect liquid in an appropriate container or absorb and place into an chemical waste container.
--------------------------------	--

Methods for cleaning up

Neutralize with alkaline material and then absorb with an inert material. Do not use combustible material such as saw dust. Do not flush into sewer. If leak or spill has not ignited, use water spray to disperse vapors. To protect personnel attempting to stop leak, flush spills away from exposures.

7. HANDLING AND STORAGE

Precautions for safe handling**Advice on safe handling**

Keep in a tightly closed container, stored in a cool, dry, well ventilated area away from sources of heat or ignition. Protect against physical damage. Store separately from reactive or combustible materials and out of direct sunlight. **STRONGLY CORROSIVE**. Should be handled in 316 stainless steel, glass, ceramic, or similar corrosion-resistant materials. Containers of this material may be hazardous when empty since they retain product residues and vapors.

Conditions for safe storage, including any incompatibilities**Storage Conditions**

Keep containers tightly closed in a dry, cool and well-ventilated place.

Packaging materials

Should be handles in 316 stainless steel, glass, ceramic or similar corrosion-resistant materials.

Incompatible materials

Sulfuric acid, strong caustics, furfuryl alcohol, hydrogen peroxide, strong oxidizers and bases. Reacts explosively with oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters**Exposure Guidelines**

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Formic Acid 64-18-6	STEL: 10 ppm TWA: 5 ppm	TWA: 5 ppm TWA: 9 mg/m ³ (vacated) TWA: 5 ppm (vacated) TWA: 9 mg/m ³	IDLH: 30 ppm TWA: 5 ppm TWA: 9 mg/m ³

Appropriate engineering controls**Engineering Controls**

Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment**Eye/face protection**

Use chemical safety goggles and/or full face shield. Maintain eye wash fountain and quick-drench facilities in work area.

Skin and body protection

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact. Wear protective Neoprene™ gloves. Rubber gloves.

Respiratory protection

If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

General Hygiene Considerations

Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	liquid	Odor	Characteristic, pungent odor
Appearance	Clear, colorless liquid	Odor threshold	No information available
Color	clear colorless	Remarks • Method	
Property	Values		
pH	No information available		
Melting point / freezing point	No information available		
Boiling point / boiling range	101 °C		
Flash point	50 °C		
Evaporation rate	2.1		
Flammability (solid, gas)	No information available		
Flammability Limit in Air			
Upper flammability limit:	No information available		
Lower flammability limit:	No information available		
Vapor pressure	40@24C		
Vapor density	No information available		
Relative density	1.2		
Water solubility	Infinitely soluble		
Solubility in other solvents	No information available		
Partition coefficient	No information available		
Autoignition temperature	No information available		
Decomposition temperature	No information available		
Kinematic viscosity	No information available		
Dynamic viscosity	No information available		
Explosive properties	No information available		
Oxidizing properties	No information available		
Other Information			
Softening point	No information available		
Molecular weight	46.03		
VOC Content (%)	No information available		
Density	No information available		
Bulk density	No information available		

10. STABILITY AND REACTIVITY

Reactivity

No data available

Chemical stability

Stable under ordinary conditions of use and storage.

Possibility of Hazardous Reactions

None under normal processing.

Hazardous polymerization Will not occur.

Conditions to avoid

Heat, flames, ignition sources and incompatibles.

Incompatible materials

Sulfuric acid, strong caustics, furfuryl alcohol, hydrogen peroxide, strong oxidizers and bases. Reacts explosively with oxidizing agents.

Hazardous Decomposition Products

Carbon dioxide and carbon monoxide may form when heated to decomposition. Dehydrated by sulfuric acid to produce carbon monoxide.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation	May cause irritation of the nose, throat and respiratory tract. Inhalation of higher concentrations may cause central nervous system effects and lung damage.
Eye contact	May cause permanent eye damage! Vapors are irritating and may cause damage to eyes. Contact may cause damage to eyes. Contact may cause severe eye burns and permanent eye damage.
Skin contact	Corrosive. Redness, pain and skin burns can occur.
Ingestion	Causes severe burns and corrosion of the mouth, throat and esophagus, with immediate pain and difficulty swallowing. Other symptoms of abdominal pain, nausea, diarrhea, and vomiting can occur, leading to shortness of breath and death. Severe poisonings can cause shock and kidney damage.

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Formic Acid 64-18-6	= 730 mg/kg (Rat)	-	= 15 g/m ³ (Rat) 15 min
Water 7732-18-5	> 90 mL/kg (Rat)	-	-

Information on toxicological effects

Symptoms No information available.

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

Carcinogenicity This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document .

12. ECOLOGICAL INFORMATION**Ecotoxicity**

When released into the soil, this material is expected to leach into ground water and may biodegrade to a moderate extent. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals.

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Formic Acid 64-18-6	25: 96 h <i>Desmodesmus subspicatus</i> mg/L EC50 26.9: 72 h <i>Desmodesmus subspicatus</i> mg/L EC50	175: 24 h <i>Lepomis macrochirus</i> mg/L LC50 static	120: 48 h <i>Daphnia magna</i> mg/L EC50 138 - 165.6: 48 h <i>Daphnia</i> <i>magna</i> mg/L EC50 Static

Persistence and degradability**Bioaccumulation**

Chemical Name	Partition coefficient
Formic Acid 64-18-6	-0.54

Other adverse effects No information available

13. DISPOSAL CONSIDERATIONS**Waste treatment methods**

Disposal of wastes Disposal should be in accordance with applicable regional, national and local laws and

regulations. Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility.

Contaminated packaging Do not reuse container.

Chemical Name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Formic Acid 64-18-6	U123	Included in waste streams: K009, K010	-	U123

Chemical Name	California Hazardous Waste Status
Formic Acid 64-18-6	Toxic Corrosive

14. TRANSPORT INFORMATION

DOT
 UN/ID no. Regulated
 UN1779
 Proper shipping name Formic Acid
 Hazard Class 8
 Subsidiary class (3),
 Packing Group II
 Reportable Quantity (RQ) 5000 lbs (2270 kg)

TDG
 UN/ID no. Regulated
 UN1779
 Proper shipping name Formic Acid
 Hazard Class 8
 Subsidiary class (3),
 Packing Group II

MEX
 UN/ID no. Regulated
 UN1779
 Proper shipping name Formic Acid
 Hazard Class 8
 Subsidiary class (3),
 Packing Group II

ICAO (air)
 UN/ID no. Regulated
 UN1779
 Proper shipping name Formic Acid
 Hazard Class 8
 Subsidiary hazard class (3),
 Packing Group II

IATA
 UN/ID no. Regulated
 UN1779
 Proper shipping name Formic Acid
 Hazard Class 8
 Subsidiary hazard class (3),
 Packing Group II

IMDG
 UN/ID no. Regulated
 UN1779
 Proper shipping name Formic Acid
 Hazard Class 8
 Subsidiary hazard class (3),
 Packing Group II

RID
 UN/ID no. Regulated
 UN1779
 Proper shipping name Formic Acid
 Hazard Class 8
 Packing Group II

ADR
 UN/ID no. Regulated
 UN1779
 Proper shipping name Formic Acid

Hazard Class	8
Packing Group	II
ADN	Regulated
UN Number	UN1779
Proper shipping name	Formic Acid
Hazard Class	8
Packing Group	II

15. REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Does not comply
IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	SARA 313 - Threshold Values %
Formic Acid - 64-18-6	1.0

SARA 311/312 Hazard Categories

Acute health hazard	Yes
Chronic Health Hazard	Yes
Fire hazard	Yes
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Formic Acid 64-18-6	5000 lb	-	-	X

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Formic Acid 64-18-6	5000 lb	-	RQ 5000 lb final RQ RQ 2270 kg final RQ

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

This product may contain substances regulated by state right-to-know regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Formic Acid 64-18-6	X	X	X
Water 7732-18-5	-	-	X

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION
--

<u>NFPA</u>	Health hazards 3	Flammability 2	Instability 0	Physical and Chemical Properties -
<u>HMIS</u>	Health hazards 3	Flammability 2	Physical hazards 0	Personal protection X

Issue Date 24-Apr-2015

Revision Date 04-Sep-2015

Revision Note

No information available

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet