

Issue Date 15-Apr-2015

Revision Date 01-Sep-2015

Version 3

1. IDENTIFICATION

Product identifier

Product Name Formic Acid 90% Viscosity Grade

Other means of identification

Product Code 3500

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

Corrosive! May cause permanent eye damage! Vapors are irritating and may cause damage to eyes. Contact may cause severe eye burns and permanent 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 | 90 |
| Water | 7732-18-5 | 10 |

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

| 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

| | | | |
|-------------------|-------------------------|-----------------------|------------------------------|
| Appearance | Clear, colorless liquid | Odor | Characteristic, pungent odor |
| Color | clear colorless | Odor threshold | No information available |

| <u>Property</u> | <u>Values</u> | <u>Remarks • Method</u> |
|---------------------------------------|--------------------------|-------------------------|
| 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 | completely 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****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 Desmodemus subspicatus mg/L EC50 26.9: 72 h Desmodemus subspicatus mg/L EC50 | 175: 24 h Lepomis macrochirus mg/L LC50 static | 120: 48 h Daphnia magna mg/L EC50 138 - 165.6: 48 h Daphnia magna 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 |

This product contains one or more substances that are listed with the State of California as a hazardous waste.

| 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
 Description Up to 55 gallons

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 does not contain any 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 contains the following 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 15-Apr-2015

Revision Date 01-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