

Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 11/01/2015

Reviewed on 11/01/2015

1 Identification

- **Product Identifier**
- **Trade name: Formic Acid 88%**
- **Product Number: ngt-88%Formic**
- **Relevant identified uses of the substance or mixture and uses advised against:**
- **Product Description** PC19 Intermediate
- **Details of the Supplier of the Safety Data Sheet:**
- **Manufacturer/Supplier:**
 NuGeneration Technologies, LLC (dba NuGenTec)
 1155 Park Avenue, Emeryville, CA 94608
 salesteam@nugentec.com www.nugentec.com
 1-888-996-8436 or 1-707-820-4080 for product information
- **Emergency telephone number:**
 PERS Emergency Response: Domestic and Canada - 1-800-633-8253, International 1-801-629-0667

2 Hazard(s) Identification

- **Classification of the substance or mixture:**



GHS06 Skull and crossbones

Acute Tox. 3 H331 Toxic if inhaled.



GHS05 Corrosion

Skin Corr. 1A H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Flam. Liq. 4 H227 Combustible liquid.

- **Label elements:**

- **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms:**



GHS05 GHS06

- **Signal word: Danger**

- **Hazard-determining components of labeling:**

formic acid

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· **Hazard statements:**

Combustible liquid.
Harmful if swallowed.
Toxic if inhaled.
Causes severe skin burns and eye damage.

· **Precautionary statements:**

Keep away from flames and hot surfaces. – No smoking.
Do not breathe dusts or mists.
Avoid breathing dust/fume/gas/mist/vapors/spray.
Use only outdoors or in a well-ventilated area.
Wear protective gloves / eye protection / face protection.
Wear eye protection / face protection.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER/doctor.
IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
Specific treatment (see supplementary first aid instructions on this Safety Data Sheet).
Call a POISON CENTER/doctor.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Wash contaminated clothing before reuse.
If swallowed: Rinse mouth. Do NOT induce vomiting.
In case of fire: Use for extinction: CO2, powder or water spray.
Store locked up.
Store in a well-ventilated place. Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



Health = 3
Fire = 2
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



HEALTH 4 Health = 4
FIRE 2 Fire = 2
REACTIVITY 0 Reactivity = 0

· **Hazard(s) not otherwise classified (HNOC):** None known

3 Composition/Information on Ingredients

7732-18-5	Water, distilled water, deionized water	15-35%
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· **Chemical characterization: Mixtures**

· **Description:** Mixture of substances listed below with non-hazardous additions.

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· Dangerous Components:

CAS: 64-18-6 RTECS: LQ 4900000	formic acid	⚠ Flam. Liq. 3, H226; ⚠ Skin Corr. 1A, H314	60-90%
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4 First-Aid Measures

· Description of first aid measures:

· General information:

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may occur after exposure to dust, fumes or particulates; seek medical attention if feeling unwell.

Remove breathing apparatus only after contaminated clothing have been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

· After inhalation:

Supply fresh air or oxygen; call for doctor.

In case of unconsciousness place patient stably in side position for transportation.

· After skin contact:

Immediately wash with water and soap and rinse thoroughly.

If skin irritation occurs, consult a doctor.

· After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.

· After swallowing:

Immediately call a doctor.

Drink copious amounts of water and provide fresh air. Immediately call a doctor.

· Information for doctor:

· Most important symptoms and effects, both acute and delayed:

No further relevant information available.

· Indication of any immediate medical attention and special treatment needed:

No further relevant information available.

5 Fire-Fighting Measures

· Extinguishing media:

· Suitable extinguishing agents:

CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

· Special hazards arising from the substance or mixture:

Combustible liquid. Vapors can travel to a source of ignition and flash back.

Explosive mixtures may occur at temperatures at or above flashpoint.

· Advice for firefighters:

· Protective equipment:

Mouth respiratory protective device.

As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent) and full protective gear to prevent contact with skin and eyes.

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6 Accidental Release Measures

- **Personal precautions, protective equipment and emergency procedures:**
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:**
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (i.e. sand, diatomite, acid binders, universal binders, sawdust).
Use neutralizing agent.
Dispose contaminated material as waste according to section 13.
Ensure adequate ventilation.
Dispose of the collected material according to regulations.
- **Reference to other sections:**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and Storage

- **Handling**
- **Precautions for safe handling:**
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
Prevent formation of aerosols.
- **Information about protection against explosions and fires:**
Protect from heat.
Keep protective respiratory device available.
- **Conditions for safe storage, including any incompatibilities:**
- **Storage**
- **Requirements to be met by storerooms and receptacles:** Store in the original container.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
No further relevant information available..
Protect from heat and direct sunlight.
- **Specific end use(s):** No further relevant information available.

8 Exposure Controls/Personal Protection

- **Additional information about design of technical systems:** No further data; see section 7.

- **Control parameters:**

- **Components with occupational exposure limits:**

64-18-6 formic acid

PEL	Long-term value: 9 mg/m ³ , 5 ppm
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REL	Long-term value: 9 mg/m ³ , 5 ppm
TLV	Short-term value: 19 mg/m ³ , 10 ppm Long-term value: 9.4 mg/m ³ , 5 ppm

- **Additional information:** The lists that were valid during the creation of this SDS were used as basis.
- **Exposure controls:**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
*The usual precautionary measures for handling chemicals should be followed.
 Keep away from foodstuffs, beverages and feed.
 Immediately remove all soiled and contaminated clothing and wash before reuse.
 Wash hands before breaks and at the end of work.
 Store protective clothing separately.
 Avoid contact with the eyes.
 Avoid contact with the eyes and skin.*
- **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure, use respiratory protective device that is independent of circulating air.
- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture. Select glove material based on penetration times, rates of diffusion and degradation.

- **Material of gloves:**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the application.
- **Penetration time of glove material:**
The exact break-through time has to be determined and observed by the manufacturer of the protective gloves.
- **Eye protection:**



Tightly sealed goggles

9 Physical and Chemical Properties

- **Information on basic physical and chemical properties**
- **General Information**
- **Appearance:**
Form: Liquid

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· Color:	Black
· Odor:	Vinegar
· Odor threshold:	Not determined.
· pH-value @ 20 °C (68 °F):	2
· Change in condition	
Melting point/Melting range:	Not determined.
Boiling point/Boiling range:	100 °C (212 °F)
· Flash point:	71 °C (160 °F)
· Flammability (solid, gaseous):	Not applicable.
· Ignition temperature:	520 °C (968 °F)
· Decomposition temperature:	Not determined.
· Auto igniting:	Product is not self-igniting.
· Danger of explosion:	Not determined.
· Explosion limits:	
Lower:	14.0 Vol %
Upper:	33.0 Vol %
· Vapor pressure @ 20 °C (68 °F):	43 hPa (32 mm Hg)
· Density @ 20 °C (68 °F):	1.167 g/cm ³ (9.739 lbs/gal)
· Relative density:	Not determined.
· Vapor density:	Not determined.
· Evaporation rate:	Not determined.
· Solubility in / Miscibility with:	
Water:	Fully miscible.
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
· Solvent content:	
Organic solvents:	0.0 %
Water:	12.0 %
· Other information:	No further relevant information available.

10 Stability and Reactivity

- **Reactivity:** No further relevant information available.
- **Chemical stability:** Stable under normal conditions.
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
- **Possibility of hazardous reactions:** No dangerous reactions known.
- **Conditions to avoid:** No further relevant information available.
- **Incompatible materials:** No further relevant information available.

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· **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological Information

· **Information on toxicological effects:**

· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

64-18-6 formic acid

Oral	LD50	1100 mg/kg (rat)
Inhalative	LC50/4 h	7.4 mg/l (rat)

· **Primary irritant effect:**

· **On the skin:**

Caustic effect on skin and mucous membranes.
Strong caustic effect on skin and mucous membranes.

· **On the eye:**

Strong caustic effect.
Strong irritant with the danger of severe eye injury.
Corrosive effect.
Causes serious eye irritation.

· **Additional toxicological information:**

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

The product shows the following dangers according to internally approved calculation methods for preparations:

Toxic
Harmful
Corrosive
Irritant

Swallowing will lead to a corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach.

· **Carcinogenic categories:**

· **IARC (International Agency for Research on Cancer):**

None of the ingredients are listed.

· **NTP (National Toxicology Program):**

None of the ingredients are listed.

· **OSHA-Ca (Occupational Safety & Health Administration):**

None of the ingredients are listed.

12 Ecological Information

· **Toxicity:**

· **Aquatic toxicity:** No further relevant information available.

· **Persistence and degradability:** No further relevant information available.

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Trade name: Formic Acid 88%

- **Behavior in environmental systems:**
- **Bioaccumulative potential:** No further relevant information available.
- **Mobility in soil:** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Do not allow undiluted product or product that has not been neutralized to reach ground water, water course or sewage system.
Must not reach bodies of water or drainage ditch undiluted or unneutralized.
- **Results of PBT and vPvB assessment:**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects:** No further relevant information available.

13 Disposal Considerations

- **Waste treatment methods:**
- **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
Observe all federal, state and local environmental regulations when disposing of this material.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport Information

- **UN-Number:**
 - **DOT** UN3265
 - **ADR, IMDG, IATA** UN3412
 - **UN proper shipping name:**
 - **DOT** Corrosive liquid, acidic, organic, n.o.s. (Formic acid)
 - **ADR** UN3412 Formic acid solution
 - **IMDG, IATA** FORMIC ACID solution
 - **Transport hazard class(es):**
 - **DOT**
- 
- **Class:** 8 Corrosive substances
 - **Label:** 8

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· **ADR**



- **Class:** 8 (C3) Corrosive substances
- **Label:** 8

· **IMDG, IATA**



- **Class:** 8 Corrosive substances
- **Label:** 8
- **Packing group:** II
- **DOT, ADR, IMDG, IATA** II
- **Environmental hazards:** Not applicable.
- **Special precautions for user:** Warning: Corrosive substances
- **Danger code (Kemler):** 80
- **EMS Number:** F-A,S-B
- **Segregation groups:** Acids, acids
- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:** Not applicable.
- **Transport/Additional information:**
- **DOT**
- **Quantity limitations:** On passenger aircraft/rail: 1 L
On cargo aircraft only: 30 L

· **ADR**

- **Excepted quantities (EQ):** Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml

· **IMDG**

- **Limited quantities (LQ):** 1L
- **Excepted quantities (EQ):** Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml
- **UN "Model Regulation":** UN 3412 FORMIC ACID SOLUTION, 8, II

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15 Regulatory Information

- Safety, health and environmental regulations/legislation specific for the substance or mixture:
- SARA (Superfund Amendments and Reauthorization):

- Section 355 (extremely hazardous substances):

None of the ingredients are listed.

- Section 313 (Specific toxic chemical listings):

64-18-6 formic acid

- TSCA (Toxic Substances Control Act):

All ingredients are listed.

- California Proposition 65:

- Chemicals known to cause cancer:

None of the ingredients are listed.

- Chemicals known to cause reproductive toxicity for females:

None of the ingredients are listed.

- Chemicals known to cause reproductive toxicity for males:

None of the ingredients are listed.

- Chemicals known to cause developmental toxicity:

None of the ingredients are listed.

- Carcinogenic categories:

- EPA (Environmental Protection Agency):

None of the ingredients are listed.

- TLV (Threshold Limit Value established by ACGIH):

None of the ingredients are listed.

- NIOSH-Ca (National Institute for Occupational Safety and Health):

None of the ingredients are listed.

- GHS label elements

The product is classified and labeled according to the Globally Harmonized System (GHS).

- Hazard pictograms:



GHS05 GHS06

- Signal word: Danger

- Hazard-determining components of labeling:

formic acid

- Hazard statements:

Combustible liquid.

Harmful if swallowed.

Toxic if inhaled.

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Trade name: Formic Acid 88%

Causes severe skin burns and eye damage.

Precautionary statements:

Keep away from flames and hot surfaces. – No smoking.

Do not breathe dusts or mists.

Avoid breathing dust/fume/gas/mist/vapors/spray.

Use only outdoors or in a well-ventilated area.

Wear protective gloves / eye protection / face protection.

Wear eye protection / face protection.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Immediately call a POISON CENTER/doctor.

IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.

Specific treatment (see supplementary first aid instructions on this Safety Data Sheet).

Call a POISON CENTER/doctor.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Wash contaminated clothing before reuse.

If swallowed: Rinse mouth. Do NOT induce vomiting.

In case of fire: Use for extinction: CO2, powder or water spray.

Store locked up.

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

Store in a well-ventilated place. Keep cool.

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

National regulations:

The product is subject to be classified according with the latest version of the regulations on hazardous substances.

State Right to Know:

CAS: 64-18-6	formic acid	60-90%
RTECS: LQ 4900000	⚠ Flam. Liq. 3, H226; ⚠ Skin Corr. 1A, H314	
CAS: 7732-18-5	Water, distilled water, deionized water	15-35%
All ingredients are listed.		

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other Information

The information and recommendations in this safety data sheet are, to the best of our knowledge, accurate as of the date of issue. Nothing herein shall be deemed to create warranty, expressed or implied, and shall not establish a legally valid contractual relationship. It is the responsibility of the user to determine applicability of this information and the suitability of the material or product for any particular purpose.

Date of preparation / last revision: 11/01/2015 / 1

Abbreviations and acronyms:

ADR: The European Agreement concerning the International Carriage of Dangerous Goods by Road

ADN: The European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

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IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Flam. Liq. 3: Flammable liquids, Hazard Category 3
Flam. Liq. 4: Flammable liquids, Hazard Category 4
Acute Tox. 4: Acute toxicity, Hazard Category 4
Acute Tox. 3: Acute toxicity, Hazard Category 3
Skin Corr. 1A: Skin corrosion/irritation, Hazard Category 1A
Eye Dam. 1: Serious eye damage/eye irritation, Hazard Category 1

*** Data compared to the previous version altered.**

SDS created by MSDS Authoring Services www.msdsauthoring.com +1-877-204-9106

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