

SAFETY DATA SHEET

According to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name: POLYMER DELETION PEN**Synonyms, Trade Names:**

Polymer Deletion Pen (broad tip), POLYMER DELETION PEN (MED TIP)

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Correction pen**Uses advised against:** Reserved for industrial and professional use.

1.3 Details of the supplier of the safety data sheet

ManufacturerAgfa NV
Septestraat 27
2640 Mortsel
Belgium**Telephone:** +32 3 4442111
Fax: +32 3 4447094
E-mail: electronic.sds@agfa.com**National Supplier**Agfa NV - UK Branch
Units 1 & 2 Ashbourne Court,
Manners Industrial Estate
DE7 8EF Ilkeston
United Kingdom**Telephone:** +44 (0)20 8 231 4616
Fax: +44 (0)20 8 231 4951
E-mail: electronic.sds@agfa.com

1.4 Emergency telephone number:

Emergency telephone number (Belgium) : +32 3 4443333 (24h/24h)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

The product has been classified according to the legislation in force.

Classification according to Regulation (EC) No 1272/2008 as amended.**Health Hazards**

Acute toxicity (Oral)	Category 3	H301: Toxic if swallowed.
Acute toxicity (Dermal)	Category 2	H310: Fatal in contact with skin.
Acute toxicity (Inhalation - vapor)	Category 4	H332: Harmful if inhaled.
Skin corrosion	Category 1B	H314: Causes severe skin burns and eye damage.
Serious eye damage	Category 1	H318: Causes serious eye damage.
Specific Target Organ Toxicity - Single Exposure	Category 3	H336: May cause drowsiness or dizziness.

2.2 Label Elements

Contains: formic acid
gamma-butyrolactone
hydrofluoric acid

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Signal Word: Danger

Hazard Statement(s):
 H310: Fatal in contact with skin.
 H301: Toxic if swallowed.
 H332: Harmful if inhaled.
 H314: Causes severe skin burns and eye damage.
 H336: May cause drowsiness or dizziness.

Precautionary Statements

Prevention:
 P261: Avoid breathing dust/fume/gas/mist/vapors/spray.
 P262: Do not get in eyes, on skin, or on clothing.
 P280: Wear protective gloves/protective clothing/eye protection/face protection.

Response:
 P301+P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor.
 P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
 P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3 Other hazards

Not fulfilling PBT (persistent/bioaccumulative/toxic) criteria Not fulfilling vPvB (very persistent/very bioaccumulative) criteria

Endocrine Disruption-Toxicity

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Endocrine Disruption-ecotoxicity

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical name	Concentration	CAS-No.	EC No.	REACH Registration No.	M-Factor:	Notes
formic acid	50 - <90%	64-18-6	200-579-1	01-2119491174-37-XXXX;	No data available.	#
gamma-butyrolactone	25 - <50%	96-48-0	202-509-5	01-	No data	

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				2119471839-21-XXXX;	available.	
hydrofluoric acid	1 - <3%	7664-39-3	231-634-8	01-2119458860-33-XXXX;	No data available.	#

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

This substance has workplace exposure limit(s).

This substance is listed as SVHC.

Classification

Chemical name	Classification	Notes
formic acid	Classification: Flam. Liq.: 3: H226; Eye Dam.: 1: H318; Skin Corr.: 1A: H314; Acute Tox.: 4: H302; Acute Tox.: 3: H331; Specific concentration limit: Serious eye irritation Category 2, 2 - < 10 %; Skin irritation Category 2, 2 - < 10 %; Skin corrosion Sub-category 1A, >= 90 %; Skin corrosion Sub-category 1B, 10 - < 90 %; Acute toxicity, oral: LD 50: 730 mg/kg Acute toxicity, inhalation: LC 50: 7.4 mg/l Acute toxicity, dermal: LD 50: > 2,000 mg/kg	Note B
gamma-butyrolactone	Classification: Eye Dam.: 1: H318; STOT SE: 3: H336; Acute Tox.: 4: H302; Acute toxicity, oral: LD 50: 1,540 mg/kg Acute toxicity, dermal: LD 50: 5,640 mg/kg	No data available.
hydrofluoric acid	Classification: Acute Tox.: 2: H300; Skin Corr.: 1A: H314; Acute Tox.: 1: H310; Acute Tox.: 2: H330; Specific concentration limit: Skin corrosion Sub-category 1A, >= 7 %; Serious eye irritation Category 2, 0.1 - < 1 %; Skin corrosion Sub-category 1B, 1 - < 7 %; Acute toxicity, inhalation: LC 50: 1610 ppm	Note B

CLP: Regulation No. 1272/2008.

The full text for all H-statements is displayed in section 16.

SECTION 4: First aid measures

General: Get medical attention if symptoms occur.

4.1 Description of first aid measures

Inhalation: Move to fresh air. Call a physician or poison control center immediately. If breathing stops, provide artificial respiration. If breathing is difficult, give oxygen. In case of inhalation of spray mist: Move person into fresh air and keep at rest.

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Skin Contact:	Call a physician or poison control center immediately. Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Destroy or thoroughly clean contaminated shoes.
Eye contact:	Call a physician or poison control center immediately. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses.
Ingestion:	Call a physician or poison control center immediately. Rinse mouth. Never give liquid to an unconscious person. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not induce vomiting without advice from poison control center.
Personal Protection for First-aid Responders:	CAUTION! First aid personnel must be aware of own risk during rescue! See Section 8 of the SDS for Personal Protective Equipment.
4.2 Most important symptoms and effects, both acute and delayed:	See section 11 of the SDS for additional information on health hazards.
4.3 Indication of any immediate medical attention and special treatment needed	
Hazards:	See section 11 of the SDS for additional information on health hazards.
Treatment:	Treat symptomatically.

SECTION 5: Firefighting measures

General Fire Hazards:	No unusual fire or explosion hazards noted.
5.1 Extinguishing media	
Suitable extinguishing media:	Extinguish with foam, carbon dioxide, dry powder or water fog.
Unsuitable extinguishing media:	Do not use water jet as an extinguisher, as this will spread the fire.
5.2 Special hazards arising from the substance or mixture:	During fire, gases hazardous to health may be formed.
5.3 Advice for firefighters	
Special fire fighting procedures:	No data available.
Special protective equipment for fire-fighters:	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:	See Section 8 of the SDS for Personal Protective Equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep unauthorized personnel away. Ventilate closed spaces before entering them. Keep upwind.
6.1.1 For non-emergency personnel:	Use personal protective equipment.

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6.1.2 For emergency responders:

Warn everybody of potential hazards and evacuate if necessary. Use personal protective equipment.

6.2 Environmental Precautions:

Do not contaminate water sources or sewer. Prevent entry into waterways, sewer, basements or confined areas. Contact local authorities in case of spillage to drain/aquatic environment.

6.3 Methods and material for containment and cleaning up:

Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Containers with collected spillage must be properly labelled with correct contents and hazard symbol. Clean surface thoroughly to remove residual contamination.

6.4 Reference to other sections:

See Section 8 of the SDS for Personal Protective Equipment. For waste disposal, see section 13 of the SDS.

SECTION 7: Handling and storage:

7.1 Precautions for safe handling:

Do not get in eyes, on skin, on clothing. Wash hands thoroughly after handling. Do not taste or swallow. Do not get in eyes.

7.2 Conditions for safe storage, including any incompatibilities:

Store locked up.

7.3 Specific end use(s):

Reserved for industrial and professional use.

SECTION 8: Exposure controls/personal protection

8.1 Control Parameters

Occupational Exposure Limits

Chemical name	Type	Exposure Limit Values	Source
formic acid	TWA	5 ppm 9.6 mg/m3	UK. EH40 Workplace Exposure Limits (WELs), as amended (12 2011)
	TWA	5 ppm 9 mg/m3	EU. Indicative Occupational Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU, as amended (12 2009)
hydrofluoric acid - as F	TWA	1.8 ppm 1.5 mg/m3	UK. EH40 Workplace Exposure Limits (WELs), as amended (12 2011)
hydrofluoric acid	STEL	3 ppm 2.5 mg/m3	EU. Indicative Occupational Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU, as amended (12 2009)
	TWA	1.8 ppm 1.5 mg/m3	EU. Indicative Occupational Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU, as amended (12 2009)
hydrofluoric acid - as F	STEL 15 minutes	3 ppm 2.5 mg/m3	EU. Scientific Committee on Occupational Exposure Limit Values (SCOELs), European Commission - SCOEL, as amended (2014)
	TWA 8 hours	1.5 mg/m3	EU. Scientific Committee on Occupational Exposure Limit Values (SCOELs), European Commission - SCOEL, as amended (2014)
	STEL 15 minutes	3 ppm 2.5 mg/m3	UK. EH40 Workplace Exposure Limits (WELs), as amended (01 2020)

Biological Limit Values

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Chemical Identity	Exposure Limit Values	Source
hydrofluoric acid (Fluoride: Sampling time: End of shift.)	8 mg/l (Urine)	EU BLV/BGV (2014)

DNEL-Values

Critical component	Type	Route of Exposure	Health Warnings	Remarks
formic acid	Workers	Inhalation	Local, long-term; 9.5 mg/m3	irritation respiratory tract
	Workers	Eyes	Local effect;	High hazard (no threshold derived)
	General population	Inhalation	Local, long-term; 3 mg/m3	irritation respiratory tract
	General population	Eyes	Local effect;	High hazard (no threshold derived)
gamma-butyrolactone	Workers	Inhalation	Systemic, long-term; 130 mg/m3	Repeated dose toxicity
	Workers	Inhalation	Systemic, short-term; 958 mg/m3	Acute toxicity
	Workers	Dermal	Systemic, long-term; 19 mg/kg	Repeated dose toxicity
	Workers	Eyes	Local effect;	High hazard (no threshold derived)
hydrofluoric acid	General population	Eyes	Local effect;	No hazard identified
	General population	Inhalation	Systemic, short-term; 0.03 mg/m3	Repeated dose toxicity
	Workers	Inhalation	Local, long-term; 1.5 µg/m3	Repeated dose toxicity
	Workers	Inhalation	Systemic, long-term; 1.5 mg/m3	Repeated dose toxicity
	General population	Inhalation	Systemic, long-term; 0.03 mg/m3	Repeated dose toxicity
	Workers	Inhalation	Systemic, short-term; 2.5 mg/m3	irritation respiratory tract
	General population	Inhalation	Local, short-term; 1.25 mg/m3	irritation respiratory tract
	Workers	Inhalation	Local, short-term; 2.5 mg/m3	irritation respiratory tract
	General population	Inhalation	Local, long-term; 0.2 mg/m3	irritation respiratory tract
	General population	Oral	Systemic, short-term; 0.01 mg/kg	Repeated dose toxicity
General population	Oral	Systemic, long-term; 0.01 mg/kg	Repeated dose toxicity	

PNEC-Values

Critical component	Environmental compartment	PNEC-Values	Remarks
formic acid	soil	1.5 mg/kg	
	Aquatic (freshwater)	2 mg/l	
	freshwater sediment	13.4 mg/kg	
	Marine sediments	1.34 mg/kg	
	Aquatic (marine water)	0.2 mg/l	
	Sewage treatment plant	7.2 mg/l	
gamma-butyrolactone	soil	0.015 mg/kg	
	Aquatic (marine water)	0.006 mg/l	
	freshwater sediment	0.24 mg/kg	
	Sewage treatment plant	452 mg/l	
	Marine sediments	0.02 mg/kg	
	Aquatic (freshwater)	0.056 mg/l	
hydrofluoric acid	soil	11 mg/kg	
	Aquatic (marine water)	0.9 mg/l	
	Aquatic (freshwater)	0.9 mg/l	
	Sewage treatment plant	51 mg/l	

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Appropriate Engineering Controls:

Provide easy access to water supply and eye wash facilities. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. Supplementary local exhaust ventilation, closed systems, or respiratory and eye protection may be needed in special circumstances, such as poorly ventilated spaces, heating, evaporation of liquids from large surfaces, spraying of mists, mechanical generation of dusts, drying of solids, etc.

Individual protection measures, such as personal protective equipment**General information:**

Follow training instructions when handling this material. Use personal protective equipment as required. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

Eye/face protection:

Safety goggles. EN 166.

Hand Protection:

Protective gloves should be used if there is a risk of direct contact or splash.(EN374), Chemical resistant gloves required for prolonged or repeated contact., Butyl rubber (EN374), Glove thickness: > 0.35 mm, Break-through time: > 240 min, Risk of splashes:, Nitrile rubber., Nitrile gloves are recommended, but be aware that the liquid may penetrate the gloves. Frequent change is advisable., The most suitable glove must be chosen in consultation with the gloves supplier, who can inform about the breakthrough time of the glove material.

Skin and Body Protection:

Safety clothes : long sleeved clothing EN13688

Respiratory Protection:

In case of inadequate ventilation use suitable respirator (EN14387). Seek advice from local supervisor.

Hygiene measures:

Do not eat, drink or smoke when using the product. Wash contaminated clothing before reuse. Observe good industrial hygiene practices. Do not get this material in contact with skin. Wash hands before breaks and immediately after handling the product. Wash hands after handling. Do not get in eyes.

Environmental Controls:

Do not empty into drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state:	liquid
Form:	liquid
Color:	Colorless
Odor:	Pungent
Odor Threshold:	No data available.
Freezing point:	14 °F/-10 °C
Boiling Point:	> 212 °F/> 100 °C

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Flammability:	Not flammable.
Upper/lower limit on flammability or explosive limits	
Explosive limit - upper:	not applicable
Explosive limit - lower:	not applicable
Flash Point:	> 144 °F/> 62 °C
Self Ignition Temperature:	No data available
Decomposition Temperature:	No data available.
pH:	substance/mixture is non-soluble (in water)
Viscosity	
Dynamic viscosity:	Not applicable
Kinematic viscosity:	Not applicable
Flow Time:	not applicable
Solubility(ies)	
Solubility in Water:	Soluble
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	Not applicable Mixture
Vapor pressure:	not applicable
Relative density:	1.1000 (68 °F/20 °C)
Density:	not applicable
Bulk density:	not applicable
Relative vapor density:	Not applicable
Particle characteristics	
Particle Size	not applicable
Distribution:	
Specific surface area:	not applicable
Surface charge/Zeta potential:	not applicable
Assessment:	not applicable
Shape:	not applicable
Crystallinity:	not applicable
Surface treatment:	not applicable

9.2 Other information

Evaporation Rate:	No data available
VOC Content:	EC Directive 1999/13: 562 g/l ~56.2 % (calculated)

SECTION 10: Stability and reactivity

10.1 Reactivity:	Material is stable under normal conditions.
10.2 Chemical Stability:	Material is stable under normal conditions.
10.3 Possibility of hazardous reactions:	Not known.
10.4 Conditions to avoid:	Avoid heat or contamination.
10.5 Incompatible Materials:	None known.
10.6 Hazardous Decomposition Products:	By heating and fire, harmful vapors/gases may be formed.

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SECTION 11: Toxicological information

Information on likely routes of exposure

- Inhalation:** Harmful if inhaled.
- Skin Contact:** Fatal in contact with skin. Causes severe skin burns.
- Eye contact:** Causes serious eye damage.
- Ingestion:** Ingestion may cause severe irritation of the mouth, the esophagus and the gastrointestinal tract. Toxic if swallowed.

11.1 Information on toxicological effects

Acute toxicity

Oral

- Product:** ATEmix: 165.79 mg/kg
- Components:**
- formic acid LD 50 (Rat): 730 mg/kg Experimental result, Key study
 - gamma-butyrolactone LD 50 (Rat): 1,540 mg/kg
LD 50 (Rat): 1,582 mg/kg Experimental result, Key study
 - hydrofluoric acid No data available.

Dermal

- Product:** ATEmix 192.31 mg/kg
- Components:**
- formic acid LD 50 (Rat): > 2,000 mg/kg Not specified, Not specified
 - gamma-butyrolactone LD 50 (Guinea pig): 5,640 mg/kg
 - hydrofluoric acid No data available.

Inhalation

- Product:** ATEmix 13.81 mg/l Vapour
- Components:**
- formic acid LC 50 (Rat, 4 h) 7.4 mg/l Vapor
 - gamma-butyrolactone No data available.
 - hydrofluoric acid LC 50 1610 ppm Gas, Experimental result, Weight of Evidence study

Repeated dose toxicity

- Product:** No data available.
- Components:**
- formic acid LOAEL (Rat(Female, Male), Inhalation): 1.2 mg/l
 - gamma-butyrolactone NOAEL (Mouse(Female, Male), Oral, 13 Weeks): 525 mg/kg
NOAEL (Rat(female), Oral, 13 Weeks): 450 mg/kg
NOAEL (Rat(Male), Oral, 13 Weeks): 225 mg/kg
 - hydrofluoric acid NOAEL (Rat(Female, Male), Inhalation, 91 d): 0.88 ppm(m)
NOAEL (Rat(Female, Male), Inhalation, 15 d): 1 ppm(m)

Skin Corrosion/Irritation:

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Product: Causes severe skin burns and eye damage.

Components:
formic acid No data available.
gamma-butyrolactone in vivo (Rabbit): Not irritant Experimental result, Key study
hydrofluoric acid in vivo (Rabbit): Not irritant Experimental result, Supporting study
in vivo (Rabbit): Corrosive Experimental result, Key study

Serious Eye Damage/Eye Irritation:

Product: Causes serious eye damage.

Components:
formic acid No data available.
gamma-butyrolactone in vivo (Rabbit, 24 - 72 hrs): Category 1 EU
hydrofluoric acid in vivo (Rabbit, 1 hrs): Moderately irritating US CPSC / US FDA

Respiratory or Skin

Sensitization:

Product: Based on available data, the classification criteria are not met.

Components:
formic acid Skin sensitization:, in vivo (Guinea pig): Non sensitising
gamma-butyrolactone No data available.
hydrofluoric acid No data available.

Germ Cell Mutagenicity

Product: Based on available data, the classification criteria are not met.

In vitro

Components:
formic acid No data available.
gamma-butyrolactone No data available.
hydrofluoric acid No data available.

In vivo

Components:
formic acid No data available.
gamma-butyrolactone No data available.
hydrofluoric acid No data available.

Carcinogenicity

Product: Based on available data, the classification criteria are not met.

Components:
formic acid No data available.
gamma-butyrolactone No data available.
hydrofluoric acid No data available.

Reproductive toxicity

Product: Based on available data, the classification criteria are not met.

Components:
formic acid No data available.
gamma-butyrolactone No data available.
hydrofluoric acid No data available.

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Specific Target Organ Toxicity - Single Exposure

Product: May cause drowsiness or dizziness.

Components:

formic acid	No data available.
gamma-butyrolactone	No data available.
hydrofluoric acid	No data available.

Specific Target Organ Toxicity - Repeated Exposure

Product: Based on available data, the classification criteria are not met.

Components:

formic acid	No data available.
gamma-butyrolactone	No data available.
hydrofluoric acid	No data available.

Aspiration Hazard

Product: Based on available data, the classification criteria are not met.

Components:

formic acid	No data available.
gamma-butyrolactone	No data available.
hydrofluoric acid	No data available.

11.2 Information on health hazards

Endocrine Disruption

Product: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.;

Components:

formic acid	No data available.
gamma-butyrolactone	No data available.
hydrofluoric acid	No data available.

SECTION 12: Ecological information

12.1 Toxicity

Acute toxicity

Remarks:

Based on available data, the classification criteria are not met.

Fish

Product: No data available.

Components

formic acid	LC 50 (Danio rerio, 96 h): 130 mg/l (Static) Read-across from supporting substance (structural analogue or surrogate), Key study
gamma-butyrolactone	No data available.
hydrofluoric acid	LC 50 (96 h): 340 mg/l Other, Weight of Evidence study

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Aquatic Invertebrates**Product:** No data available.**Components**

formic acid	EC 50 (Daphnia magna, 48 h): 365 mg/l (Static) Read-across from supporting substance (structural analogue or surrogate), Key study
gamma-butyrolactone	No data available.
hydrofluoric acid	EC 50 (Daphnia magna; Daphnia sp., 48 h): 270 mg/l (Static) Other, Supporting study

Toxicity to Aquatic Plants**Product:** No data available.**Components**

formic acid	No data available.
gamma-butyrolactone	No data available.
hydrofluoric acid	No data available.

Toxicity to microorganisms**Product:** No data available.**Components**

formic acid	EC50 (Pseudomonas putida (bacteria), 17 h): 46.7 mg/l
gamma-butyrolactone	No data available.
hydrofluoric acid	NOEC (Bacteria, 3 h): 510 mg/l (OECD-Guideline No.209; 88/302/EEC C.11) Based on available data, the classification criteria are not met.

Chronic Toxicity**Remarks:**

Based on available data, the classification criteria are not met.

Fish**Product:** No data available.**Components**

formic acid	No data available.
gamma-butyrolactone	No data available.
hydrofluoric acid	NOAEL (Oncorhynchus mykiss, 21 d): 4 mg/l (Static) Other, Key study

Aquatic Invertebrates**Product:** No data available.**Components**

formic acid	No data available.
gamma-butyrolactone	No data available.
hydrofluoric acid	No data available.

Toxicity to Aquatic Plants**Product:** No data available.**Components**

formic acid	No data available.
gamma-butyrolactone	No data available.
hydrofluoric acid	No data available.

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12.2 Persistence and Degradability

Biodegradation

Product: No data available.

Components

formic acid 90 % Detected in water. Read-across from supporting substance (structural analogue or surrogate), Key study
 gamma-butyrolactone No data available.
 hydrofluoric acid No data available.

BOD/COD Ratio

Product No data available.

Components

formic acid No data available.
 gamma-butyrolactone No data available.
 hydrofluoric acid No data available.

12.3 Bioaccumulative potential

Product: No data available.

Components

formic acid No data available.
 gamma-butyrolactone No data available.
 hydrofluoric acid No data available.

12.4 Mobility in soil

Product: No data available.

Components

formic acid No data available.
 gamma-butyrolactone No data available.
 hydrofluoric acid No data available.

12.5 Results of PBT and vPvB assessment

Product: Not fulfilling PBT (persistent/bioaccumulative/toxic) criteria Not fulfilling vPvB (very persistent/very bioaccumulative) criteria

Components

formic acid No data available.
 gamma-butyrolactone No data available.
 hydrofluoric acid No data available.

12.6 Endocrine disrupting properties

Product: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Components:

formic acid No data available.

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gamma-butyrolactone	No data available.
hydrofluoric acid	No data available.

12.7 Other adverse effects: No data available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

- General information:** Disposal considerations (including disposal of contaminated containers or packaging) Dispose of waste at an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.
- Disposal methods:** Discharge, treatment, or disposal may be subject to national, state, or local laws.
- Since emptied containers retain product residue, follow label warnings even after container is emptied.
- Contaminated Packaging:** Dispose in accordance with all applicable regulations.

SECTION 14: Transport information

ADR

- | | |
|------------------------------------|---|
| 14.1 UN Number: | UN 3244 |
| 14.2 UN Proper Shipping Name: | SOLIDS CONTAINING CORROSIVE LIQUID, N.O.S.(Formic acid) |
| 14.3 Transport Hazard Class(es) | |
| Class: | 8 |
| Label(s): | 8 |
| Hazard No. (ADR): | 80 |
| Tunnel restriction code: | (E) |
| 14.4 Packing Group: | II |
| Limited quantity | 1.00KG |
| Excepted quantity | E2 |
| 14.5 Environmental Hazards: | No |
| 14.6 Special precautions for user: | – |

RID

- | | |
|------------------------------------|---|
| 14.1 UN Number: | UN 3244 |
| 14.2 UN Proper Shipping Name | SOLIDS CONTAINING CORROSIVE LIQUID, N.O.S.(Formic acid) |
| 14.3 Transport Hazard Class(es) | |
| Class: | 8 |
| Label(s): | 8 |
| 14.4 Packing Group: | II |
| 14.5 Environmental Hazards: | No |
| 14.6 Special precautions for user: | – |

IMDG

- | | |
|---------------------------------|---|
| 14.1 UN Number: | UN 3244 |
| 14.2 UN Proper Shipping Name: | SOLIDS CONTAINING CORROSIVE LIQUID, N.O.S.(Formic acid) |
| 14.3 Transport Hazard Class(es) | |

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According to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended

Class: 8
 Label(s): 8
 EmS No.: F-A, S-B
 14.4 Packing Group: II
 Limited quantity 1.00KG
 Excepted quantity E2
 14.5 Environmental Hazards: Not regulated.
 14.6 Special precautions for user: –

IATA

14.1 UN Number: UN 3244
 14.2 Proper Shipping Name: Solids containing corrosive liquid, n.o.s.(Formic acid)
 14.3 Transport Hazard Class(es):
 Class: 8
 Label(s): 8
 14.4 Packing Group: II
 Excepted quantity E2
 14.5 Environmental Hazards: No
 14.6 Special precautions for user: –

Other information

Passenger and cargo aircraft: Allowed.

Cargo aircraft only: Allowed.

14.7 Maritime transport in bulk according to IMO instruments: not applicable

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:

EU Regulations

EU. REACH Candidate List of Substances of Very High Concern for Authorization (SVHC): none

EU. REACH Annex XIV, Substances Subject to Authorization: none

Regulation (EC) No. 1907/2006 Annex XVII Substances subject to restriction on marketing and use: none

Regulation 1005/2009/EC on substances that deplete the ozone layer, Annex I, Controlled Substances: none

Regulation 1005/2009/EC on substances that deplete the ozone layer, Annex II, New Substances: none

EU. Regulation 2019/1021/EU on persistent organic pollutants (POPs) (recast), as amended: none

EU. Directive 2010/75/EU on Industrial Emissions (IPPC), Annex II, L 334/17:

Chemical name	CAS-No.
hydrofluoric acid	7664-39-3

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I,

SAFETY DATA SHEET

According to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended

Part 1 as amended: none

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended: none

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended: none

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended: none

Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens and mutagens at work.: none

Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breast feeding.: none

EU. Directive 2012/18/EU (SEVESO III) on major accident hazards involving dangerous substances, Annex I:

Classification	Lower-tier Requirements	Upper-tier Requirements
H2. Acute toxic	50 t	200 t

EU. Regulation No. 166/2006 PRTR (Pollutant Release and Transfer Registry), Annex II: Pollutants:

Chemical name	CAS-No.	Concentration
hydrofluoric acid	7664-39-3	1.0 - 10%

Directive 98/24/EC on the protection of workers from the risks related to chemical agents at work:

Chemical name	CAS-No.	Concentration
formic acid	64-18-6	50 - 60%
hydrofluoric acid	7664-39-3	1.0 - 10%

15.2 Chemical safety assessment:

No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

Revision Information:

Section(s) changed compared to the previous issue: 2, 3, 14.

Abbreviations and acronyms:

ADR	Accord européen relatif au transport international des marchandises Dangereuses par Route
ADNR	Accord européen relatif au transport international des marchandises Dangereuses par la Rhin
AGW	Arbeitsplatzgrenswerte (DE)
ATEmix	Acute toxicity estimate of the mixture
CLP	Classification, Labelling and Packaging of substances and mixtures
CMR	carcinogenicity, mutagenicity and toxicity for reproduction
DNEL	Derived No Effect Level
EC0	Effective Concentration 0%
EC5	Effective Concentration 5%
EC10	Effective Concentration 10%

SAFETY DATA SHEET

According to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended

EC50	Median Effective Concentration
EC100	Effective Concentration 100%
EH40 WEL	Workplace Exposure Limit (GB)
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
IC50	inhibitory concentration 50%
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
IUCLID	International Uniform Chemical Information Database
LC50	Lethal Concentration 50%
LC100	Lethal Concentration 100%
LOAEL	Lowest Observed Adverse Effect Level
LDL0	Lethal Dose (minimum found to be lethal)
LD50	Lethal Dose 50%
MAC	Maximaal Aanvaardbare Concentratie (NL)
MAK	Maximale Arbeitsplatz-Konzentration
NOAEL	No Observed Adverse Effect Level
NOEL	No Observed Effect Level
NOEC	No Observed Effect Concentration
OEL	Occupational Exposure Limit
PBT	Persistent, Bioaccumulative and Toxic substance
PNEC	Predicted No Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Regulations concerning the International Transport of Dangerous Goods by Rail
STEL	Short Term Exposure Limit
TLV	Threshold Limit Value
TRGS900	Arbeitsplatzgrenswerte (DE)
TWA	Time Weighted Average
VOC	Volatile Organic Compound
vPvB	very Persistent and very Bioaccumulative substance

Notes:

formic acid	Note B	Some substances (acids, bases, etc.) are placed on the market in aqueous solutions at various concentrations and, therefore, these solutions require different classification and labelling since the hazards vary at different concentrations. In Part 3 entries with Note B have a general designation of the following type: 'nitric acid...%'. In this case the supplier must state the percentage concentration of the solution on the label. Unless otherwise stated, it is assumed that the percentage concentration is calculated on a weight/weight basis.
hydrofluoric acid	Note B	Some substances (acids, bases, etc.) are placed on the market in aqueous solutions at various concentrations and, therefore, these solutions require different classification and labelling since the hazards vary at different concentrations. In Part 3 entries with Note B have a general designation of the following type: 'nitric acid...%'. In this case the supplier must state the percentage concentration of the solution on the label. Unless otherwise stated, it is assumed that the percentage concentration is calculated on a weight/weight basis.

SAFETY DATA SHEET

According to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended

Key literature references and sources for data: Safety Data Sheet from the supplier.
ECHA

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]

Classification according to Regulation (EC) No 1272/2008 as amended.	Classification procedure
Acute toxicity, Category 3 Oral	Calculation method
Acute toxicity, Category 2 Dermal	Calculation method
Acute toxicity, Category 4 Inhalation - vapor	Calculation method
Skin corrosion, Category 1B	Calculation method
Serious eye damage, Category 1	Calculation method
Specific Target Organ Toxicity - Single Exposure, Category 3	Calculation method

Wording of the H-statements in section 2 and 3

H226	Flammable liquid and vapor.
H300	Fatal if swallowed.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H310	Fatal in contact with skin.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H330	Fatal if inhaled.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H336	May cause drowsiness or dizziness.

Training information: Follow training instructions when handling this material.

Disclaimer: This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.