

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

Product form : Solution
Product name : Ninhydrin Solution (HFE Based)
Product code : B-794010 (1000 ml), B-794015 (500 ml), B-794020 (250 ml)
Type of product : Solution

1.2. Relevant identified uses of the substance or mixture and uses advised against**1.2.1. Relevant identified uses**

Use of the substance/mixture : Solution used for developing fingerprints on paper.

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

BVDA International BV
Emrikweg 31
P.O. Box 2323
2031 BT Haarlem - Nederland
T +31(0)23-5424708 - F +31(0)23-5322358
Info@bvda.nl - www.bvda.com

1.4. Emergency telephone number

Country	Official advisory body	Address	Emergency number	Comment
United Kingdom	Guy's & St Thomas' Poisons Unit Medical Toxicology Unit, Guy's & St Thomas' Hospital Trust	Avonley Road SE14 5ER London	+44 20 7188 7188	

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****Classification according to Regulation (EC) No. 1272/2008 [CLP]**

Not classified

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements**Labelling according to Regulation (EC) No. 1272/2008 [CLP]**

Precautionary statements (CLP) : P233 - Keep container tightly closed.
P235+P410 - Keep cool. Protect from sunlight.
P262 - Do not get in eyes, on skin, or on clothing.
P273 - Avoid release to the environment.
P271 - Use only outdoors or in a well-ventilated area.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P302+P352 - IF ON SKIN: Wash with plenty of soap and water.

2.3. Other hazards

No additional information available

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SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
METHYL PERFLUOROBUTYL ETHER	(CAS-No.) 163702-07-6	19 – 77,544	Not classified
METHYL PERFLUOROISOBUTYL ETHER	(CAS-No.) 163702-08-7	19 – 77,544	Not classified
ethanol; ethyl alcohol	(CAS-No.) 64-17-5 (EC-No.) 200-578-6 (EC Index-No.) 603-002-00-5	< 5	Flam. Liq. 2, H225
Ninhydrine	(CAS-No.) 485-47-2 (EC-No.) 207-618-1	< 1	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335
Acetic acid	(CAS-No.) 64-19-7 (EC-No.) 200-580-7 (EC Index-No.) 607-002-00-6	< 1	Flam. Liq. 3, H226 Skin Corr. 1A, H314
ethyl acetate	(CAS-No.) 141-78-6 (EC-No.) 205-500-4 (EC Index-No.) 607-022-00-5	< 1	Flam. Liq. 2, H225 Eye Irrit. 2, H319 STOT SE 3, H336

Specific concentration limits:

Name	Product identifier	Specific concentration limits
Acetic acid	(CAS-No.) 64-19-7 (EC-No.) 200-580-7 (EC Index-No.) 607-002-00-6	(10 ≤C < 25) Eye Irrit. 2, H319 (10 ≤C < 25) Skin Irrit. 2, H315 (25 ≤C < 90) Skin Corr. 1B, H314 (90 ≤C < 100) Skin Corr. 1A, H314

Full text of H- and EUH-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation	: Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.
First-aid measures after skin contact	: Rinse and then wash skin with water and soap. Take victim to a doctor if irritation persists.
First-aid measures after eye contact	: Rinse immediately with plenty of water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Take victim to an ophthalmologist if irritation persists.
First-aid measures after ingestion	: Consult a doctor/medical service if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects	: Unlikely to cause harmful effects.
Symptoms/effects after inhalation	: ON HEATING: Dry/sore throat. Dizziness. Headache. Coughing. Irritation of the nasal mucous membranes.
Symptoms/effects after skin contact	: Unlikely to cause harmful effects.
Symptoms/effects after eye contact	: ON HEATING: Irritation of the eye tissue. Visual disturbances. Redness of the eye tissue.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

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SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Adapt extinguishing media to the environment.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Non combustible.
Explosion hazard : No direct explosion hazard.
Reactivity in case of fire : Upon combustion: CO and CO₂ are formed.

5.3. Advice for firefighters

No additional information available

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment : Protective clothing. Gloves. Safety glasses.

6.1.2. For emergency responders

Protective equipment : Do not inhale vapour.
Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent spreading in sewers. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Heat exposure: dilute toxic gas/vapour with water spray. Dam up the liquid spill. Do not use compressed air for pumping over spills.
Methods for cleaning up : Scoop absorbed substance into closing containers. Clean contaminated surfaces with an excess of water. Take up liquid spill into absorbent material, e.g.: dry sand/earth/vermiculite or powdered limestone.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Do not discharge the waste into the drain. Use only outdoors or in a well-ventilated area. Do not get in eyes, on skin, or on clothing.

7.2. Conditions for safe storage, including any incompatibilities

Information on mixed storage : (strong) bases.
Storage area : Meet the legal requirements. Store in a dark area. Store in a dry area. Keep container in a well-ventilated place.
Special rules on packaging : correctly labelled. Secure fragile packagings in solid containers. Keep only in original container.
Packaging materials : aluminium.

7.3. Specific end use(s)

No additional information available

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SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Acetic acid (64-19-7)

Belgium - Occupational Exposure Limits

Limit value [mg/m ³]	25
Limit value [ppm]	10 ppm

France - Occupational Exposure Limits

VME [mg/m ³]	25 mg/m ³
VME [ppm]	10 ppm

Germany - Occupational Exposure Limits (TRGS 900)

Occupational exposure limit value (mg/m ³)	10 mg/m ³
Occupational exposure limit value (ppm)	25 ppm

ethyl acetate (141-78-6)

EU - Occupational Exposure Limits

IOELV TWA (mg/m ³)	734 mg/m ³
IOELV TWA (ppm)	200 ppm
IOELV STEL (mg/m ³)	1468 mg/m ³
IOELV STEL (ppm)	400 ppm

Belgium - Occupational Exposure Limits

Limit value [mg/m ³]	734 mg/m ³
Limit value [ppm]	200 ppm
Short time value [mg/m ³]	1468 mg/m ³
Short time value [ppm]	400 ppm

France - Occupational Exposure Limits

VME [mg/m ³]	734 mg/m ³
VME [ppm]	200 ppm
VLE [mg/m ³]	1468 mg/m ³
VLE [ppm]	400 ppm

Netherlands - Occupational Exposure Limits

Grenswaarde TGG 8H (mg/m ³)	734 mg/m ³
Grenswaarde TGG 15MIN (mg/m ³)	1468 mg/m ³

United Kingdom - Occupational Exposure Limits

WEL TWA (mg/m ³)	734 mg/m ³
WEL TWA (ppm)	200 ppm
WEL STEL (mg/m ³)	1468 mg/m ³
WEL STEL (OEL STEL) [ppm]	400 ppm

USA - ACGIH - Occupational Exposure Limits

ACGIH TWA (ppm)	400 ppm
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8.2. Exposure controls

No additional information available

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SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Liquid.
Colour	: Light yellow.
Odour	: slight. Ether-like odour.
Odour threshold	: No data available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Relative gas density	: 0
Solubility	: Insoluble in water.
Partition coefficient n-octanol/water (Log Pow)	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

VOC content : 100 %

SECTION 10: Stability and reactivity

10.1. Reactivity

On heating/burning: release of toxic and corrosive gases/vapours hydrofluoric acid. Upon combustion: CO and CO₂ are formed.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

No additional information available

10.5. Incompatible materials

(strong) bases.

10.6. Hazardous decomposition products

Carbon dioxide. Carbon monoxide. Corrosive vapours.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified

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Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

Ninhydrine (485-47-2)

LD50 oral rat	600 mg/kg (Rat, Literature study, Oral)
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Acetic acid (64-19-7)

LD50 oral rat	3310 mg/kg
LD50 dermal rabbit	1112 mg/kg
LC50 Inhalation - Rat	11,4 mg/l/4h

ethyl acetate (141-78-6)

LD50 oral rat	10200 mg/kg bodyweight (Equivalent or similar to OECD 401, Rat, Female, Experimental value, Oral, 14 day(s))
LD50 dermal rabbit	> 20000 mg/kg bodyweight (24 hour cuff method, 24 h, Rabbit, Male, Experimental value, Dermal, 14 day(s))

METHYL PERFLUOROBUTYL ETHER (163702-07-6)

LD50 oral rat	> 5000 mg/kg
LC50 Inhalation - Rat	> 1000 mg/l/4h

METHYL PERFLUOROISOBUTYL ETHER (163702-08-7)

LD50 oral rat	> 5000 mg/kg
LC50 Inhalation - Rat	> 1000 mg/l/4h

Skin corrosion/irritation : Not classified
Serious eye damage/irritation : Not classified
Respiratory or skin sensitisation : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified

Reproductive toxicity : Not classified

STOT-single exposure : Not classified

STOT-repeated exposure : Not classified

Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1. Toxicity

Hazardous to the aquatic environment, short-term (acute) : Not classified
Hazardous to the aquatic environment, long-term (chronic) : Not classified

Acetic acid (64-19-7)

LC50 fish 1	> 1000 mg/l
EC50 Daphnia 1	300,82 mg/l

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ethyl acetate (141-78-6)	
LC50 fish 1	230 mg/l (US EPA, 96 h, Pimephales promelas, Flow-through system, Fresh water, Experimental value, Lethal)

12.2. Persistence and degradability

Ninhydrine (485-47-2)	
Persistence and degradability	Not readily biodegradable in water.
ThOD	1,53 g O ₂ /g substance

ethyl acetate (141-78-6)	
Persistence and degradability	Biodegradable in the soil. Readily biodegradable in water.
Biochemical oxygen demand (BOD)	0,293 g O ₂ /g substance
Chemical oxygen demand (COD)	1,69 g O ₂ /g substance
ThOD	1,82 g O ₂ /g substance

12.3. Bioaccumulative potential

Ninhydrine (485-47-2)	
Partition coefficient n-octanol/water (Log Pow)	0,67 (Experimental value)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

ethyl acetate (141-78-6)	
BCF fish 1	30 (3 day(s), Leuciscus idus, Static renewal, Experimental value)
Partition coefficient n-octanol/water (Log Pow)	0,68 (Experimental value, EPA OPPTS 830.7560, 25 °C)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

12.4. Mobility in soil

Ninhydrine (485-47-2)	
Surface tension	No data available in the literature
Partition coefficient n-octanol/water (Log Koc)	0,864 – 1 (log Koc, SRC PCKOCWIN v2.0, Calculated value)
Ecology - soil	Highly mobile in soil.

ethyl acetate (141-78-6)	
Surface tension	No data available in the literature
Ecology - soil	Low potential for adsorption in soil.

12.5. Results of PBT and vPvB assessment

Component	
ethyl acetate (141-78-6)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

12.6. Other adverse effects

No additional information available

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SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional legislation (waste)	: Disposal must be done according to official regulations.
Product/Packaging disposal recommendations	: Remove waste in accordance with local and/or national regulations.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

UN-No. (ADR)	: Not applicable
UN-No. (IMDG)	: Not applicable
UN-No. (IATA)	: Not applicable
UN-No. (ADN)	: Not applicable
UN-No. (RID)	: Not applicable

14.2. UN proper shipping name

Proper Shipping Name (ADR)	: Not applicable
Proper Shipping Name (IMDG)	: Not applicable
Proper Shipping Name (IATA)	: Not applicable
Proper Shipping Name (ADN)	: Not applicable
Proper Shipping Name (RID)	: Not applicable

14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR) : Not applicable

IMDG

Transport hazard class(es) (IMDG) : Not applicable

IATA

Transport hazard class(es) (IATA) : Not applicable

ADN

Transport hazard class(es) (ADN) : Not applicable

RID

Transport hazard class(es) (RID) : Not applicable

14.4. Packing group

Packing group (ADR)	: Not applicable
Packing group (IMDG)	: Not applicable
Packing group (IATA)	: Not applicable
Packing group (ADN)	: Not applicable
Packing group (RID)	: Not applicable

14.5. Environmental hazards

Dangerous for the environment	: No
Marine pollutant	: No
Other information	: No supplementary information available

14.6. Special precautions for user

Overland transport

Not applicable

Transport by sea

Not applicable

Air transport

Not applicable

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Inland waterway transport

Not applicable

Rail transport

Not applicable

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

Contains no REACH substances with Annex XVII restrictions

Ninhydrin Solution (HFE Based) is not on the REACH Candidate List

Contains no substance on the REACH candidate list

Contains no REACH Annex XIV substances

Contains no substance subject to Regulation (EU) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of hazardous chemicals.

Contains no substance subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

VOC content : 100 %

15.1.2. National regulations

Germany

Water hazard class (WGK)

: WGK 3, Highly hazardous to water (Classification according to AwSV, Annex 1)

Hazardous Incident Ordinance (12. BImSchV)

: Is not subject of the Hazardous Incident Ordinance (12. BImSchV)

Netherlands

SZW-lijst van kankerverwekkende stoffen

: ethanol; ethyl alcohol is listed

SZW-lijst van mutagene stoffen

: None of the components are listed

NIET-limitatieve lijst van voor de voortplanting

: ethanol; ethyl alcohol is listed

giftige stoffen – Borstvoeding

NIET-limitatieve lijst van voor de voortplanting

: ethanol; ethyl alcohol is listed

giftige stoffen – Vruchtbaarheid

NIET-limitatieve lijst van voor de voortplanting

: ethanol; ethyl alcohol is listed

giftige stoffen – Ontwikkeling

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Full text of H- and EUH-statements:

Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Flam. Liq. 2	Flammable liquids, Category 2
Flam. Liq. 3	Flammable liquids, Category 3
Skin Corr. 1A	Skin corrosion/irritation, Category 1, Sub-Category 1A
Skin Corr. 1B	Skin corrosion/irritation, Category 1, Sub-Category 1B
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Narcosis
H225	Highly flammable liquid and vapour.

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H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.

SDS EU (REACH Annex II)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.