



**Neutron**®Pharmaceutical Co.  
Manufacturer of Laboratory Chemical & Pharmaceutical Materials

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 18.03.2019

Version 14.1

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## SECTION 1. Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifier

Catalogue No.	1.4380
Product name	Hanus solution for determination of iodine number c(IBr) = 0.1 mol/l Titripur®
REACH Registration Number	This product is a mixture. REACH Registration Number see section 3.

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

Identified uses	Reagent for analysis For additional information on uses please refer to the Neutron Chemicals portal ( <a href="http://www.neutronpharmaceutical.com">www.neutronpharmaceutical.com</a> ).
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### 1.3 Details of the supplier of the safety data sheet

Company	98, 9th Floor, Borjsaz Building, Azadi Ave, Tehran, Iran. T 021-66906732-3 - F 021-66581408
Responsible Department	LS-QHC * e-mail: <a href="mailto:Info@neutronpharmaceutical.com">Info@neutronpharmaceutical.com</a>

### 1.4 Emergency telephone number 125

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## SECTION 2. Hazards identification

### 2.1 Classification of the substance or mixture

#### Classification (REGULATION (EC) No 1272/2008)

Flammable liquid, Category 3, H226

Skin corrosion, Category 1A, H314

For the full text of the H-Statements mentioned in this Section, see Section 16.

### 2.2 Label elements

#### Labelling (REGULATION (EC) No 1272/2008)

*Hazard pictograms*





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## Hazardous components (REGULATION (EC) No 1272/2008)

*Chemical name (Concentration)*

CAS-No.	Registration number	Classification
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acetic acid ( $\geq 90\%$  -  $\leq 100\%$ )

*Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.*

64-19-7	01-2119475328-30-XXXX	Flammable liquid, Category 3, H226 Skin corrosion, Category 1A, H314
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Iodine monobromide ( $\geq 1\%$  -  $< 5\%$ )

7789-33-5	*)	Skin corrosion, Category 1B, H314 Specific target organ toxicity - single exposure, Category 3, H335
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\*) A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

For the full text of the H-Statements mentioned in this Section, see Section 16.

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## SECTION 4. First aid measures

### 4.1 Description of first aid measures

*General advice*

First aider needs to protect himself.

After inhalation: fresh air. Call in physician.

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

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

Irritation and corrosion, Cough, Shortness of breath

Risk of blindness!

Nausea, Vomiting, bronchitis, gastric spasms, Circulatory collapse, shock

Risk of corneal clouding.

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

No information available.

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## SECTION 5. Firefighting measures

### 5.1 Extinguishing media

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## *Suitable extinguishing media*

Water, Foam, Carbon dioxide (CO<sub>2</sub>), Dry powder

## *Unsuitable extinguishing media*

For this substance/mixture no limitations of extinguishing agents are given.

### **5.2 Special hazards arising from the substance or mixture**

Combustible.

Vapours are heavier than air and may spread along floors.

Forms explosive mixtures with air at elevated temperatures.

Development of hazardous combustion gases or vapours possible in the event of fire.

Fire may cause evolution of:

Acetic acid vapours

### **5.3 Advice for firefighters**

#### *Special protective equipment for firefighters*

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

#### *Further information*

Remove container from danger zone and cool with water. Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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## **SECTION 6. Accidental release measures**

### **6.1 Personal precautions, protective equipment and emergency procedures**

Advice for non-emergency personnel: Do not breathe vapours, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

### **6.2 Environmental precautions**

Do not let product enter drains. Risk of explosion.

### **6.3 Methods and materials for containment and cleaning up**

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10).

Take up with liquid-absorbent and neutralising material (e.g. Chemizorb® H<sup>+</sup>, Merck Art. No. 101595). Dispose of properly. Clean up affected area.

### **6.4 Reference to other sections**

Indications about waste treatment see section 13.

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## **SECTION 7. Handling and storage**

### **7.1 Precautions for safe handling**

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### *Advice on safe handling*

Observe label precautions.

### *Advice on protection against fire and explosion*

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

### *Hygiene measures*

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

## **7.2 Conditions for safe storage, including any incompatibilities**

### *Storage conditions*

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

Recommended storage temperature see product label.

## **7.3 Specific end use(s)**

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

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## **SECTION 8. Exposure controls/personal protection**

### **8.1 Control parameters**

#### **Derived No Effect Level (DNEL)**

##### *acetic acid (64-19-7)*

Worker DNEL, acute	Local effects	inhalation	25 mg/m <sup>3</sup>
Worker DNEL, longterm	Local effects	inhalation	25 mg/m <sup>3</sup>
Consumer DNEL, acute	Local effects	inhalation	25 mg/m <sup>3</sup>
Consumer DNEL, longterm	Local effects	inhalation	25 mg/m <sup>3</sup>

#### **Predicted No Effect Concentration (PNEC)**

##### *acetic acid (64-19-7)*

PNEC Fresh water	3,058 mg/l
PNEC Fresh water sediment	11,36 mg/kg
PNEC Marine water	0,3058 mg/l
PNEC Marine sediment	1,136 mg/kg
PNEC Aquatic intermittent release	30,58 mg/l
PNEC Sewage treatment plant	85 mg/l

### **8.2 Exposure controls**

#### **Engineering measures**

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Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

## Individual protection measures

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

### *Eye/face protection*

Tightly fitting safety goggles

### *Hand protection*

full contact:

Glove material: butyl-rubber  
Glove thickness: 0,7 mm  
Break through time: 480 min

splash contact:

Glove material: Viton (R)  
Glove thickness: 0,70 mm  
Break through time: 120 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 898 Butoject® (full contact), KCL 890 Vitoject® (splash contact).

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

### *Other protective equipment*

Flame retardant antistatic protective clothing.

### *Respiratory protection*

required when vapours/aerosols are generated.

Recommended Filter type: filter E-(P2)

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.

These measures have to be properly documented.

## Environmental exposure controls

Do not let product enter drains.

Risk of explosion.

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## SECTION 9. Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

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Form	liquid
Colour	brown
Odour	stinging
Odour Threshold	No information available.
pH	< 1 at 20 °C
Melting point	No information available.
Boiling point	No information available.
Flash point	ca. 40 °C
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Vapour pressure	No information available.
Relative vapour density	No information available.
Density	ca. 1,06 g/cm <sup>3</sup> at 20 °C
Relative density	No information available.
Water solubility	at 20 °C soluble
Partition coefficient: n-octanol/water	No information available.
Auto-ignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	none

## 9.2 Other data

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none

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## SECTION 10. Stability and reactivity

### 10.1 Reactivity

Vapour/air-mixtures are explosive at intense warming.

### 10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### 10.3 Possibility of hazardous reactions

Risk of explosion with:

peroxi compounds, perchloric acid, fuming sulfuric acid, phosphorus halides, hydrogen peroxide, chromium(VI) oxide, potassium permanganate, Peroxides, Strong oxidizing agents

Risk of ignition or formation of inflammable gases or vapours with:

Iron, Zinc, magnesium, Mild steel

Possible formation of:

Hydrogen

Violent reactions possible with:

strong alkalis, anhydrides, Aldehydes, alkali hydroxides, nonmetallic halides, ethanalamine, Acetaldehyde, Alcohols, halogen-halogen compounds, chlorosulfonic acid, chromosulfuric acid, Potassium hydroxide, Nitric acid

### 10.4 Conditions to avoid

Heating.

### 10.5 Incompatible materials

no information available

### 10.6 Hazardous decomposition products

in the event of fire: See section 5.

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## SECTION 11. Toxicological information

### 11.1 Information on toxicological effects

#### Mixture

#### *Acute oral toxicity*

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach., Nausea, Vomiting, Risk of aspiration upon vomiting., Pulmonary failure possible after aspiration of vomit.

#### *Acute inhalation toxicity*

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract, Pneumonia, bronchitis, Inhalation may lead to the formation of oedemas in the respiratory tract., Symptoms may be delayed.

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## *Acute dermal toxicity*

This information is not available.

## *Skin irritation*

Mixture causes severe burns.

## *Eye irritation*

Mixture causes serious eye damage. Risk of blindness!

Risk of corneal clouding.

## *Sensitisation*

This information is not available.

## *Germ cell mutagenicity*

This information is not available.

## *Carcinogenicity*

This information is not available.

## *Reproductive toxicity*

This information is not available.

## *Teratogenicity*

This information is not available.

## *Specific target organ toxicity - single exposure*

This information is not available.

## *Specific target organ toxicity - repeated exposure*

This information is not available.

## *Aspiration hazard*

This information is not available.

## **11.2 Further information**

Systemic effects:

Shortness of breath, gastric spasms, shock, acidosis, Circulatory collapse

Absorption may result in damage of the following:

Kidney

Handle in accordance with good industrial hygiene and safety practice.

Other dangerous properties can not be excluded.

## **Components**

### *acetic acid*

#### *Acute oral toxicity*

LD50 Rat: 3.310 mg/kg  
(RTECS)

#### *Acute inhalation toxicity*

LCL0 Rat: 39,95 mg/l; 4 h  
(RTECS)

#### *Skin irritation*

Rabbit

Result: Causes burns.

(IUCLID)

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#### *Eye irritation*

Rabbit

Result: Causes burns.

(IUCLID)

#### *Germ cell mutagenicity*

*Genotoxicity in vitro*

Ames test

Salmonella typhimurium

Result: negative

Method: OECD Test Guideline 471

Mutagenicity (mammal cell test): chromosome aberration.

Result: negative

Method: OECD Test Guideline 473

#### *Teratogenicity*

Did not show teratogenic effects in animal experiments. (IUCLID)

#### *Iodine monobromide*

No information available.

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## SECTION 12. Ecological information

### Mixture

#### 12.1 Toxicity

No information available.

#### 12.2 Persistence and degradability

No information available.

#### 12.3 Bioaccumulative potential

No information available.

#### 12.4 Mobility in soil

No information available.

#### 12.5 Results of PBT and vPvB assessment

Substance(s) in the mixture do(es) not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII, or a PBT/vPvB assessment was not conducted.

#### 12.6 Other adverse effects

*Additional ecological information*

Biological effects:

Harmful effect due to pH shift. Caustic even in diluted form.

Discharge into the environment must be avoided.

### Components

*acetic acid*

*Toxicity to fish*

semi-static test LC50 *Oncorhynchus mykiss* (rainbow trout): > 300,8 mg/l; 96 h

OECD Test Guideline 203

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*Toxicity to daphnia and other aquatic invertebrates*

EC50 *E.sulcatum*: 78 mg/l; 72 h  
neutral (maximum permissible toxic concentration) (Lit.)

EC50 *Daphnia magna* (Water flea): 47 mg/l; 24 h  
(Lit.)

*Toxicity to algae*

IC50 *Scenedesmus quadricauda* (Green algae): 4.000 mg/l; 16 h  
(maximum permissible toxic concentration) (Lit.)

*Toxicity to bacteria*

EC50 *Pseudomonas putida*: 2.850 mg/l; 16 h  
neutral (maximum permissible toxic concentration) (Lit.)

microtox test EC50 *Photobacterium phosphoreum*: 11 mg/l; 15 min  
(IUCLID)

*Biodegradability*

99 %; 30 d  
OECD Test Guideline 301D  
(HSDB)  
Readily biodegradable

95 %; 5 d  
OECD Test Guideline 302B  
Readily eliminated from water

*Biochemical Oxygen Demand (BOD)*

880 mg/g (5 d)  
(Lit.)

*Ratio BOD/ThBOD*

BOD5 76 %  
(IUCLID)

*Partition coefficient: n-octanol/water*

log Pow: -0,17 (25 °C)  
(experimental)  
(ECHA) Bioaccumulation is not expected.

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

*Iodine monobromide*

No information available.

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## SECTION 13. Disposal considerations

### *Waste treatment methods*

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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## SECTION 14. Transport information

### Land transport (ADR/RID)

**14.1 UN number** UN 2789  
**14.2 Proper shipping name** ACETIC ACID SOLUTION  
**14.3 Class** 8 (3)  
**14.4 Packing group** II  
**14.5 Environmentally hazardous** --  
**14.6 Special precautions for user** yes  
Tunnel restriction code D/E

### Inland waterway transport (ADN)

Not relevant

### Air transport (IATA)

**14.1 UN number** UN 2789  
**14.2 Proper shipping name** ACETIC ACID SOLUTION  
**14.3 Class** 8 (3)  
**14.4 Packing group** II  
**14.5 Environmentally hazardous** --  
**14.6 Special precautions for user** no

### Sea transport (IMDG)

**14.1 UN number** UN 2789  
**14.2 Proper shipping name** ACETIC ACID SOLUTION  
**14.3 Class** 8 (3)  
**14.4 Packing group** II  
**14.5 Environmentally hazardous** --  
**14.6 Special precautions for user** yes  
EmS F-E S-C

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## 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not relevant

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## SECTION 15. Regulatory information

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

#### *EU regulations*

Major Accident Hazard SEVESO III  
Legislation FLAMMABLE LIQUIDS  
P5c  
Quantity 1: 5.000 t  
Quantity 2: 50.000 t

Occupational restrictions Take note of Dir 94/33/EC on the protection of young people at work.

Regulation (EC) No 1005/2009 on substances not regulated that deplete the ozone layer

Regulation (EC) No 850/2004 of the not regulated European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC

Substances of very high concern (SVHC) This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of  $\geq 0.1\%$  (w/w).

#### *National legislation*

Storage class 3

### 15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

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## SECTION 16. Other information

### Full text of H-Statements referred to under sections 2 and 3.

H226 Flammable liquid and vapour.  
H314 Causes severe skin burns and eye damage.  
H335 May cause respiratory irritation.

### Training advice

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Provide adequate information, instruction and training for operators.

## Labelling

*Hazard pictograms*



*Signal word*

Danger

*Hazard statements*

H226 Flammable liquid and vapour.

H314 Causes severe skin burns and eye damage.

*Precautionary statements*

Prevention

P210 Keep away from heat.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/physician.

Contains: acetic acid

## Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

## Regional representation

This information is given on the authorised Safety Data Sheet for your country.

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*The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.*

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