

Material Safety Data Sheet

According to 91/155 EEC

Reviewed on 23.02.2005

* 1 Identification of substance:

- **Product details:** Reagent for water analysis
- **Product name:** NH4-3 TC Reagent HR Set (NH3-N Diluent HR 0-50 mg/l; ppm)
- **Catalog number:** 251 998 **Model:** NH4-3 TC (HR)
- **Supplier:**
WTW Wissenschaftlich-Technische Werkstätten GmbH
Dr.-Karl-Slevogt-Straße 1
D-82362 Weilheim Tel.: +49(0)881 183-0 Internet: <http://www.WTW.com>
Fax: +49(0)881 183-420 Tel.: +49(0)881 183-100 E-Mail: Info@WTW.com
- **Emergency information:**
Poison Center Berlin, Germany
Tel.: +49(0)30 19240

* 2 Composition/Data on components:

- **Chemical characterization:** Preparation contains anorganic and organic compounds.
- **CAS No. Designation:**
7732-18-5 water, distilled, conductivity or of similar purity
- **Identification number(s):**
- **EINECS Number:** 231-791-2

3 Hazards identification

- **Hazard designation:** void
- **Information pertaining to particular dangers for man and environment** void

* 4 First aid measures

- **General information** No special measures required.
- **After inhalation** Supply fresh air; consult doctor in case of symptoms.
- **After skin contact** Instantly wash with water and soap and rinse thoroughly.
- **After eye contact**
Rinse opened eye for several minutes under running water.
Seek medical treatment.
- **After swallowing**
Rinse out mouth and then drink plenty of water.
In case of persistent symptoms consult doctor.

* 5 Fire fighting measures

- **Suitable extinguishing agents** Use fire fighting measures that suit the environment.
- **Special hazards caused by the material, its products of combustion or resulting gases:**
Formation of toxic gases is possible during heating or in case of fire.
- **Protective equipment:** Wear self-contained breathing apparatus.
- **Additional information**
Ambient fire may liberate hazardous vapours.

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Product name: NH4-3 TC Reagent HR Set (NH3-N Diluent HR 0-50 mg/l; ppm)

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Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
Collect contaminated fire fighting water separately. It must not enter drains.

* 6 Accidental release measures

- **Person-related safety precautions:**
Ensure adequate ventilation
Use breathing protection against the effects of fumes/dust/aerosol.
- **Measures for environmental protection:** Dilute with much water.
- **Measures for cleaning/collecting:**
Absorb with liquid-binding material (sand, diatomite, universal binders).
Dispose of contaminated material as waste according to item 13.
- **Additional information:** No dangerous materials are released.

* 7 Handling and storage

- **Handling**
- **Information for safe handling:** No special measures required.
- **Information about protection against explosions and fires:** The product is not flammable
- **Storage**
- **Requirements to be met by storerooms and containers:** Store in cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
Store under dry conditions.
Protect from humidity and keep away from water.
Protect from the effects of light.
- **Storage class** Not required.

* 8 Exposure controls and personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Components with limit values that require monitoring at the workplace:** Not required.
- **Additional information:** The lists that were valid during the compilation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures**
The usual precautionary measures should be adhered to general rules for handling chemicals.
- **Breathing equipment:** Use breathing protection against the effects of fumes/dust/aerosol.
- **Protection of hands:** Preventive skin protection by use of skin-protecting agents is recommended.
- **Material of gloves**
Nitrile
Recommended thickness of the material: ≥ 0.11 mm
- **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
Value for the permeation: Level ≥ 6 (480 min)
- **Eye protection:** Safety glasses
- **Body protection:** Protective work clothing.

9 Physical and chemical properties:

- **Form:** Fluid
- **Colour:** Colourless

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Product name: NH4-3 TC Reagent HR Set (NH3-N Diluent HR 0-50 mg/l; ppm)

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· Odour:	Odourless
· Melting point/Melting range:	0°C
· Boiling point/Boiling range:	100°C
· Flash point:	Not applicable
· Danger of explosion:	Product is not explosive.
· Vapour pressure at 20°C:	23 hPa
· Density at 20°C	1 g/cm ³
· Solubility in / Miscibility with Water:	Fully miscible
· pH-value at 20°C:	10.2
· Organic solvents:	0.0 %
· Water:	< 100 %
· Solids content:	< 1 %

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Dangerous reactions** No dangerous reactions known
- **Dangerous products of decomposition:** No dangerous decomposition products known

* 11 Toxicological information

- **Acute toxicity:**

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

54-21-7 sodium salicylate

Oral	LD50	930 mg/kg (rat)
	LDLo	700 mg/kg (human)

1310-73-2 sodium hydroxide

Oral	LD50	2000 mg/kg (rat)
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- **Primary irritant effect:**

- **on the skin:** No irritant effect.
- **on the eye:** Irritant effect.

- **Sensitization:** No sensitizing effect known.

- **Additional toxicological information:**

When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

The material is not subject to classification according to EC lists in the last version.

* 12 Ecological information:

- **Information about elimination (persistence and degradability):**

- **Other information:** Quantitative data on the ecological effect of this product are not available.

- **Behaviour in environmental systems:**

54-21-7 sodium salicylate

log P(o/w)	-1.43 (.)
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Product name: NH4-3 TC Reagent HR Set (NH3-N Diluent HR 0-50 mg/l; ppm)

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· **Ecotoxicological effects:**

· **Aquatic toxicity:**

54-21-7 sodium salicylate

Daphnia EC50	230 mg/l/24h (Daphnia magna)
LC50	90 mg/l/48h (Leuciscus idus)

1310-73-2 sodium hydroxide

LC 50	189 mg/l (fish)
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· **General notes:** Generally not hazardous for water.

* 13 Disposal considerations

· **Product:**

· **Recommendation**

Small amounts may be diluted with plenty of water and washed away. Dispose of bigger amounts in accordance with Local Authority requirements.

· **European waste catalogue**

16 05 09	discarded chemicals other than those mentioned in 16 05 06, 16 05 07 or 16 05 08
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· **Uncleaned packagings:**

· **Recommendation:** Disposal must be made according to official regulations.

· **Recommended cleaning agent:** Water, if necessary with cleaning agent.

14 Transport information

· **Land transport ADR/RID (cross-border)**

· **ADR/RID-GGVS/E Class:** -

· **Maritime transport IMDG:**

· **IMDG Class:** -

· **Marine pollutant:** No

· **Air transport ICAO-TI and IATA-DGR:**

· **ICAO/IATA Class:** -

· **Transport/Additional information:** Not dangerous according to the above specifications.

* 15 Regulatory information

· **Designation according to EC guidelines:**

Observe the normal safety regulations when handling chemicals

The product is not subject to identification regulations under EC Directives and the Ordinance on Hazardous Materials (GefStoffV).

· **National regulations**

· **Water hazard class:** Generally not hazardous for water.

16 Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing data specification sheet:** Department TSS, Dr. Manfred Kaul

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

Material Safety Data Sheet According to 91/155 EEC

Reviewed on 04.02.2005

* 1 Identification of substance:

- **Catalog number:** 251 998 **Model:** NH4-3 TC (HR)
- **Product name:** NH4-3 TC Reagent HR Set (Vario Ammonia Cyanurate F5)
- **Supplier:**
 WTW Wissenschaftlich-Technische Werkstätten GmbH
 Dr.-Karl-Slevogt-Straße 1
 D-82362 Weilheim Tel.: +49(0)881 183-0 Internet: <http://www.WTW.com>
 Fax: +49(0)881 183-420 Tel.: +49(0)881 183-100 E-Mail: Info@WTW.com
- **Emergency information:**
 Poison Center Berlin, Germany
 Tel.: +49(0)30 19240

* 2 Composition/Data on components:

- **Description:** Mixture of the substances listed below with harmless additions.

- **Dangerous components:**

CAS: 1310-65-2 EINECS: 215-183-4	lithium hydroxide	☠ C; R 22-35	5-10%
CAS: 51580-86-0 EINECS: 220-767-7 EC Number: 613-030-01-7	sodium dichloroisocyanurate, dihydrate	☠ Xn, ☠ N; R 22-31-36/37-50/53	≤ 2.5%

- **Additional information** For the wording of the listed risk phrases refer to section 16.

* 3 Hazards identification

- **Hazard designation:**



C Corrosive

- **Information pertaining to particular dangers for man and environment**

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

R 34 Causes burns.

R 52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

- **Classification system**

The classification is in line with current EC lists. It is expanded, however, by information from technical literature and by information furnished by supplier companies.

* 4 First aid measures

- **General information** Instantly remove any clothing soiled by the product.
- **After inhalation**
 Supply fresh air or oxygen; call for doctor.
 In case of unconsciousness bring patient into stable side position for transport.

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Material Safety Data Sheet

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Product name: NH4-3 TC Reagent HR Set (Vario Ammonia Cyanurate F5)

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- **After skin contact**
Instantly wash with polyethylene glycol 400.
Instantly rinse with water.
Immediate medical treatment necessary. Failure to treat burns can prevent wounds from healing.
 - **After eye contact**
Rinse opened eye for several minutes under running water.
Call a doctor immediately.
 - **After swallowing** Drink copious amounts of water and provide fresh air. Instantly call for doctor.
 - **The following symptoms may occur:**
after inhalation:
damage to the affected mucous membranes
coughing
breathing difficulty
after swallowing:
Strong caustic effect.
headache
cramps
vomiting
pain
 - **Danger**
Danger of gastric perforation.
Danger of impaired breathing.
 - **Treatment**
If swallowed or in case of vomiting, danger of entering the lungs
Subsequent observation for pneumonia and pulmonary oedema
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* 5 Fire fighting measures

- **Suitable extinguishing agents**
CO₂, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.
 - **Special hazards caused by the material, its products of combustion or resulting gases:**
Formation of toxic gases is possible during heating or in case of fire.
Nitrogen oxides (NO_x)
Hydrogen chloride (HCl)
 - **Protective equipment:**
Wear self-contained breathing apparatus.
Wear full protective suit.
 - **Additional information**
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
Collect contaminated fire fighting water separately. It must not enter drains.
-

* 6 Accidental release measures

- **Person-related safety precautions:** Wear protective equipment. Keep unprotected persons away.
 - **Measures for environmental protection:**
Do not allow product to reach sewage system or water bodies.
Inform respective authorities in case product reaches water or sewage system.
 - **Measures for cleaning/collecting:**
neutralize with diluted sulphuric acid
Absorb with liquid-binding material (sand, diatomite, universal binders).
Ensure adequate ventilation.
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Material Safety Data Sheet

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Product name: NH4-3 TC Reagent HR Set (Vario Ammonia Cyanurate F5)

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* 7 Handling and storage

- **Handling**
- **Information for safe handling:**
 - Prevent formation of dust.
 - Keep containers tightly sealed.
 - Keep away from heat and direct sunlight.
 - Thorough dedusting.
- **Information about protection against explosions and fires:** Protect from heat.
- **Storage**
- **Requirements to be met by storerooms and containers:** Store in cool location.
- **Information about storage in one common storage facility:**
 - Do not store together with acids.
 - Store away from oxidizing agents.
- **Further information about storage conditions:**
 - Keep container tightly sealed.
 - Store under dry conditions.
 - Protect from humidity and keep away from water.
- **Storage class** Not required.

* 8 Exposure controls and personal protection

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

- **Components with limit values that require monitoring at the workplace:**

1310-65-2 lithium hydroxide (5-10%)	
OES	Short-term value: 1 mg/m ³ ILV
51580-86-0 sodium dichloroisocyanurate, dihydrate (≤ 2.5%)	
MEL	Short-term value: 0.07 mg/m ³ Long-term value: 0.02 mg/m ³ Sen; as -NCO

- **Additional information:** The lists that were valid during the compilation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures**
 - Keep away from foodstuffs, beverages and food.
 - Take off immediately all contaminated clothing
 - Wash hands during breaks and at the end of the work.
 - Avoid contact with the eyes and skin.
- **Breathing equipment:**
 - In case of brief exposure or low pollution use breathing filter apparatus. In case of intensive or longer exposure use breathing apparatus that is independent of circulating air.
- **Recommended filter device for short term use:** Filter P2
- **Protection of hands:**
 - Alkaline resistant gloves
 - Only use chemical-protective gloves with CE-labelling of category III.
 - After use of gloves apply skin-cleaning agents and skin cosmetics.
- **Material of gloves**
 - Nitrile
 - Recommended thickness of the material: ≥ 0.11 mm
 - 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 can not be calculated in advance and has therefore to be checked prior to the application.
- **Penetration time of glove material**
 - The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
 - Value for the permeation: Level ≥ 6 (480 min)
- **Eye protection:** Tightly sealed safety glasses.

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Product name: NH4-3 TC Reagent HR Set (Vario Ammonia Cyanurate F5)

(Contd. of page 3)

 · **Body protection:** Alkaline resistant protective clothing

* 9 Physical and chemical properties:

· Form:	Powder
· Colour:	White
· Odour:	Pungent
· Melting point/Melting range:	150°C
· Boiling point/Boiling range:	Not applicable
· Flash point:	Not applicable
· Ignition temperature:	250.0°C
· Self-inflammability:	Product is not selfigniting.
· Danger of explosion:	Product is not explosive.
· Density	Not determined
· Solubility in / Miscibility with Water at 25°C:	425 g/l
· pH-value (32 g/l) at 20°C:	12.7
· Solvent content:	
Organic solvents:	0.0 %
· Solids content:	100.0 %

* 10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** To avoid thermal decomposition do not overheat.
- **Materials to be avoided:**
 - oxidizing agents
 - acids
- **Dangerous reactions**
 - > forms heat
 - Corrosive action on metals
 - Corrodes aluminium
 - Reacts with metals forming hydrogen
 - > Explosive
- **Dangerous products of decomposition:**
 - Chlorine compounds
 - see chapter 5

* 11 Toxicological information

- **Acute toxicity:** Quantitative data on the toxicity of the preparation are not available.

· LD/LC50 values that are relevant for classification:		
6132-04-3 Sodium citrate tribasic dihydrate		
	LD50 IVN	449 mg/kg (rabbit)
1310-65-2 lithium hydroxide		
Oral	LD50	210 mg/kg (rat)
51580-86-0 sodium dichloroisocyanurate, dihydrate		
Oral	LD50	1400 mg/kg (rat)
Dermal	LD50	> 5000 mg/kg (rabbit)

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Material Safety Data Sheet

According to 91/155 EEC

Reviewed on 04.02.2005

Product name: NH4-3 TC Reagent HR Set (Vario Ammonia Cyanurate F5)

(Contd. of page 4)

- **Primary irritant effect:**
- **on the skin:** Caustic effect on skin and mucous membranes.
- **on the eye:** Strong caustic effect.
- **Sensitization:** No sensitizing effect known.
- **Experience with humans:**
 - Can cause liver damages.
 - Can cause kidney damages.
- **Additional toxicological information:**
 - The product shows the following dangers according to the calculation method of the General EC Classification Guidelines for Preparations as issued in the latest version:
 - Corrosive
 - Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

* 12 Ecological information:

- **Information about elimination (persistence and degradability):**
- **Other information:** Quantitative data on the ecological effect of this product are not available.
- **Ecotoxicological effects:**
- **Remark:**
 - Forms corrosive mixtures with water even if diluted.
 - Harmful to aquatic organisms
 - Harmful to fish
- **Additional ecological information:**
 - The following applies to lithium compounds in general:
 - MERCK - biological effects:
 - fish toxic from 100 mg/l up
 - Daphnia toxic from 16 mg/ up
 - plants toxic from 0.2 mg/l up (value calculated as Li)
- **General notes:**
 - Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water.
 - Do not allow product to reach ground water, water bodies or sewage system.
 - Rinse off of bigger amounts into drains or the aquatic environment may lead to increased pH-values. A high pH-value harms aquatic organisms.

* 13 Disposal considerations

- **Product:**
- **Recommendation** Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· **European waste catalogue**

16 05 06	laboratory chemicals, consisting of or containing dangerous substances, including mixtures of laboratory chemicals
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- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleaning agent:** Water, if necessary with cleaning agent.

* 14 Transport information

- **ADR/GGVSE:** UN 3316 CHEMIE-TESTSATZ, 9, II

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Material Safety Data Sheet

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Product name: NH4-3 TC Reagent HR Set (Vario Ammonia Cyanurate F5)

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IMDG/GGVSee: UN 3316 CHEMICAL KIT, 9, II
EMS-Number: F-A S-P

ICAO/IATA: CHEMICAL KIT, 9, UN 3316, II

* 15 Regulatory information

· **Designation according to EC guidelines:**

The product has been classified and labelled in accordance with EC Directives / Ordinance on Hazardous Materials (GefStoffV)

· **Code letter and hazard designation of product:**

C Corrosive

· **Hazard-determining components of labelling:**

lithium hydroxide

· **Risk phrases:**

34 Causes burns.

52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

· **Safety phrases:**

20 When using do not eat or drink.

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

60 This material and its container must be disposed of as hazardous waste.

61 Avoid release to the environment. Refer to special instructions/safety data sheets.

* 16 Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Relevant R-phrases**

22 Harmful if swallowed.

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Material Safety Data Sheet

According to 91/155 EEC

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Product name: NH4-3 TC Reagent HR Set

(Vario Ammonia Cyanurate F5)

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31 Contact with acids liberates toxic gas.

35 Causes severe burns.

36/37 Irritating to eyes and respiratory system.

50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

· **Department issuing data specification sheet:** Department TSS, Dr. Manfred Kaul

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

— GB —

Material Safety Data Sheet According to 91/155 EEC

Reviewed on 04.02.2005

* 1 Identification of substance:

- **Product details:** Reagent for water analysis
- **Product name:** NH4-3 TC Reagent HR Set (Vario Ammonia Salicylate F5)
- **Catalog number:** 251 998 **Model:** NH4-3 TC (HR)
- **Supplier:**
 WTW Wissenschaftlich-Technische Werkstätten GmbH
 Dr.-Karl-Slevogt-Straße 1
 D-82362 Weilheim Tel.: +49(0)881 183-0 Internet: <http://www.WTW.com>
 Fax: +49(0)881 183-420 Tel.: +49(0)881 183-100 E-Mail: Info@WTW.com
- **Emergency information:**
 Poison Center Berlin, Germany
 Tel.: +49(0)30 19240

* 2 Composition/Data on components:

- **Description:** Mixture of the substances listed below with harmless additions.

- **Dangerous components:**

CAS: 54-21-7 EINECS: 200-198-0	sodium salicylate	 Xn; R 22-36	45-50%
CAS: 13755-38-9 EINECS: 238-373-9	sodium nitroprusside dihydrate	 T; R 25	≤ 2.5%

- **Additional information** For the wording of the listed risk phrases refer to section 16.

* 3 Hazards identification

- **Hazard designation:**



Xn Harmful

- **Information pertaining to particular dangers for man and environment**

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

R 22 Harmful if swallowed.

R 36 Irritating to eyes.

- **Classification system**

The classification is in line with current EC lists. It is expanded, however, by information from technical literature and by information furnished by supplier companies.

* 4 First aid measures

- **General information**

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

- **After inhalation** Supply fresh air and call for doctor for safety reasons.

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Product name: NH4-3 TC Reagent HR Set (Vario Ammonia Salicylate F5)

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- **After skin contact** Instantly wash with water and soap and rinse thoroughly.
 - **After eye contact**
 - Rinse opened eye for several minutes under running water.
 - Call a doctor immediately.
 - **After swallowing**
 - Drink copious amounts of water and provide fresh air. Instantly call for doctor.
 - Induce vomiting.
 - **The following symptoms may occur:**
 - after swallowing:
 - Fever
 - breathing difficulty
 - Disorientation
 - headache
 - sickness
 - diarrhoea
 - Dizziness
 - gastric pain
 - vomiting
 - after inhalation:
 - coughing
 - mucous membrane irritation
 - **Danger** Danger of system failure.
-

* 5 Fire fighting measures

- **Suitable extinguishing agents**
 - CO₂, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.
 - **Special hazards caused by the material, its products of combustion or resulting gases:**
 - Formation of toxic gases is possible during heating or in case of fire.
 - cyanide compounds, sodium monoxide
 - nitrous gases
 - **Protective equipment:**
 - Wear self-contained breathing apparatus.
 - Wear full protective suit.
 - **Additional information**
 - Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
 - Collect contaminated fire fighting water separately. It must not enter drains.
-

* 6 Accidental release measures

- **Person-related safety precautions:**
 - Wear protective equipment. Keep unprotected persons away.
 - Avoid causing dust.
 - **Measures for environmental protection:** Do not allow product to reach sewage system or water bodies.
 - **Measures for cleaning/collecting:**
 - Collect mechanically.
 - Ensure adequate ventilation.
 - Dispose of contaminated material as waste according to item 13.
-

* 7 Handling and storage

- **Handling**
 - **Information for safe handling:**
 - Thorough dedusting.
 - Any deposit of dust which cannot be avoided must be removed regularly.
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Material Safety Data Sheet

According to 91/155 EEC

Reviewed on 04.02.2005

Product name: NH4-3 TC Reagent HR Set (Vario Ammonia Salicylate F5)

(Contd. of page 2)

- **Information about protection against explosions and fires:** Protect from heat.
- **Storage**
- **Requirements to be met by storerooms and containers:** Store in cool location.
- **Information about storage in one common storage facility:** store away from solvents
- **Further information about storage conditions:**
 - Keep container tightly sealed.
 - Store under dry conditions.
 - Protect from humidity and keep away from water.
- **Storage class** Not required.

* 8 Exposure controls and personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Components with limit values that require monitoring at the workplace:**
 - The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists that were valid during the compilation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures**
 - Keep away from foodstuffs, beverages and food.
 - Take off immediately all contaminated clothing
 - Wash hands during breaks and at the end of the work.
 - Avoid contact with the eyes.
 - Avoid contact with the eyes and skin.
 - Do not eat, drink or smoke while working.
- **Breathing equipment:** Use breathing protection against the effects of fumes/dust/aerosol.
- **Recommended filter device for short term use:** Filter P2
- **Protection of hands:**
 - Only use chemical-protective gloves with CE-labelling of category III.
 - The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
 - Preventive skin protection by use of skin-protecting agents is recommended.
 - After use of gloves apply skin-cleaning agents and skin cosmetics.
- **Material of gloves**
 - Nitrile
 - 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 can not be calculated in advance and has therefore to be checked prior to the application.
 - Recommended thickness of the material: ≥ 0.11 mm
- **Penetration time of glove material**
 - The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
 - Value for the permeation: Level ≥ 6 (480 min)
- **Eye protection:** Tightly sealed safety glasses.
- **Body protection:** Light weight protective clothing

* 9 Physical and chemical properties:

- | | |
|---------------------------------------|----------------------------|
| · Form: | Powder |
| · Colour: | Whitish |
| · Odour: | Odourless |
| · Melting point/Melting range: | Not determined |
| · Boiling point/Boiling range: | Not applicable |
| · Flash point: | Not applicable |
| · Ignition temperature: | $\sim 250^{\circ}\text{C}$ |

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Reviewed on 04.02.2005

Product name: NH4-3 TC Reagent HR Set (Vario Ammonia Salicylate F5)

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· Self-inflammability:	Product is not selfigniting.
· Danger of explosion:	Product is not explosive.
· Density at 20°C	1.247 g/cm ³
· Solubility in / Miscibility with Water:	Soluble
· pH-value (50 g/l) at 20°C:	8.1
· Solvent content:	
Organic solvents:	0.0 %
· Solids content:	100.0 %

* 10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** To avoid thermal decomposition do not overheat.
- **Materials to be avoided:**
 - oxidizing agents
 - alkali metals
 - acids
- **Dangerous reactions** Contact with acids releases toxic gases
- **Dangerous products of decomposition:** see chapter 5

* 11 Toxicological information

- **Acute toxicity:** Quantitative data on the toxicity of the preparation are not available.

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

54-21-7 sodium salicylate

Oral	LD50	930 mg/kg (rat)
	LDLo	700 mg/kg (human)

13755-38-9 sodium nitroprusside dihydrate

Oral	LD50	99 mg/kg (rat)
	LDLo	20 mg/kg (rat)

- **Primary irritant effect:**
 - **on the skin:** Irritant to skin and mucous membranes.
 - **on the eye:** Irritant effect.
- **Sensitization:** No sensitizing effect known.
- **Additional toxicological information:**

The product shows the following dangers according to the calculation method of the General EC Classification Guidelines for Preparations as issued in the latest version:

Harmful
Irritant

The following complies to cyanogen compounds / nitriles in general:
Utmost caution! Release of hydrocyanic acid is possible - blockade of cellular respiration.
The following applies to soluble iron compounds: nausea and vomiting after swallowing. The absorption of large quantities is followed by cardiovascular disorders. Toxic effect on liver and kidneys.

* 12 Ecological information:

- **Information about elimination (persistence and degradability):**
- **Other information:** Quantitative data on the ecological effect of this product are not available.

(Contd. on page 5)

Material Safety Data Sheet

According to 91/155 EEC

Reviewed on 04.02.2005

Product name: NH4-3 TC Reagent HR Set (Vario Ammonia Salicylate F5)

(Contd. of page 4)

· Behaviour in environmental systems:	
54-21-7 sodium salicylate	
log P(o/w)	-1.43 (.)
· Ecotoxicological effects:	
· Aquatic toxicity:	
54-21-7 sodium salicylate	
Daphnia EC50	230 mg/l/24h (Daphnia magna)
LC50	90 mg/l/48h (Leuciscus idus)
13755-38-9 sodium nitroprusside dihydrate	
Daphnia EC50	1.0 mg/l/24h (Daphnia magna)
LC50	0.08 mg/l (fish)
· Remark:	
Toxic for fish:	
CAS 13755-38-9 (Fe): > 0,9 mg/l / pH 6,5-7,5	
MERCK: the following applies to dissolved iron compounds in general:	
fish: toxic as from 0.9 mg/l at pH 6.5 - 7.5	
lethal as from 1 mg/l at pH 5.5 - 6.7	
· General notes:	
Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water.	
Do not allow product to reach ground water, water bodies or sewage system.	

* 13 Disposal considerations

· Product:	
· Recommendation Must not be disposed of together with household garbage. Do not allow product to reach sewage system.	
· European waste catalogue	
16 05 06	laboratory chemicals, consisting of or containing dangerous substances, including mixtures of laboratory chemicals
· Uncleaned packagings:	
· Recommendation: Disposal must be made according to official regulations.	
· Recommended cleaning agent: Water, if necessary with cleaning agent.	

* 14 Transport information

· Land transport ADR/RID (cross-border)	
· ADR/RID-GGVS/E Class: -	
· Maritime transport IMDG:	
· IMDG Class:	-
· Marine pollutant:	No
· Air transport ICAO-TI and IATA-DGR:	
· ICAO/IATA Class:	-
· Transport/Additional information: Not dangerous according to the above specifications.	

* 15 Regulatory information

· Designation according to EC guidelines:	
The product has been classified and labelled in accordance with EC Directives / Ordinance on Hazardous Materials (GefStoffV)	
· Code letter and hazard designation of product:	
Xn Harmful	

(Contd. on page 6)

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Material Safety Data Sheet

According to 91/155 EEC

Reviewed on 04.02.2005

Product name: NH4-3 TC Reagent HR Set (Vario Ammonia Salicylate F5)

(Contd. of page 5)

· Hazard-determining components of labelling:

sodium salicylate

· Risk phrases:

22 Harmful if swallowed.

36 Irritating to eyes.

· Safety phrases:

22 Do not breathe dust.

24 Avoid contact with skin.

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

36 Wear suitable protective clothing.

46 If swallowed, seek medical advice immediately and show this container or label.

60 This material and its container must be disposed of as hazardous waste.

*** 16 Other information**

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Relevant R-phrases

22 Harmful if swallowed.

25 Toxic if swallowed.

36 Irritating to eyes.

· Department issuing data specification sheet: Department TSS, Dr. Manfred Kaul**· Data compared to the previous version altered.**

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