

31.08.2026

Kit Components

Product code	Description
--------------	-------------

12561	RA-4 Start-Up Kit BX
--------------	-----------------------------

Components:

12561-A	RA-4 Start-Up Kit BX Part A
12561-B	RA-4 Start-Up Kit BX Part B

Safety data sheet according to UK REACH

Printing date 31.08.2026

Version 1.2

Revision: 31.08.2026

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

1.1 Product identifier

Trade name: **RA-4 Start-Up Kit BX Part A**

Article number: 12561-A

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

To this day we do not have any information about the identified use at the moment. These data are available we will add these to the safety data sheet.

Application of the substance / the mixture Photo chemicals

Uses advised against

All applications that are not expressly named as permitted uses in this safety data sheet are considered prohibited.

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier:

Calbe Chemie GmbH
Stadtfeld 31
D-39240 Calbe
Phone: +49 (0)39291 425-0
Fax: +49 (0)39291 425-25
e-mail: info@calbe-chemie.de
www.calbe-chemie.de

Informing department: E-Mail: info@calbe-chemie.de

1.4 Emergency telephone number:

Phone: +49 (0) 700-24112112 (CAL)
Phone: +1 872 5888271(CAL)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008



GHS07

Eye Irrit. 2 H319 Causes serious eye irritation.

Additional information:

The full text of the classification and labelling elements mentioned is given in Section 16.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008

The product is classified and labelled according to the GB CLP regulation.

Hazard pictograms



GHS07

Signal word Warning

Hazard statements

H319 Causes serious eye irritation.

Precautionary statements

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

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P313 If eye irritation persists: Get medical advice/attention.

(Contd. on page 2)

Safety data sheet according to UK REACH

Printing date 31.08.2026

Version 1.2

Revision: 31.08.2026

Trade name: RA-4 Start-Up Kit BX Part A

(Contd. of page 1)

- **Additional information:**
EUH031 Contact with acids liberates toxic gas.
- **2.3 Other hazards**
No special hazards known if the regulations/instructions for storage and handling are observed.
Where applicable, this section provides information on other hazards that do not result in classification but may contribute to the overall hazards of the substance or mixture.
The product does not contain any substance above legal limits that fulfils the criteria for PBT (persistent, bioaccumulative and toxic) or vPvB (very persistent and very bioaccumulative). The product does not contain any substance above the legal limits that has been included in the list drawn up in accordance with Article 59(1) of Regulation (EC) No 1907/2006 due to endocrine disrupting properties or that has endocrine disrupting or endocrine disrupting properties in accordance with Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable
- **vPvB:** Not applicable

SECTION 3: Composition/information on ingredients

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

- **Dangerous components:**

CAS: 10192-30-0 EINECS: 233-469-7 REACH Reg. no.: 01-2119537321-49-xxxx	ammonium hydrogensulphite ⚠ Eye Irrit. 2, H319	10 - 15%
---	---	----------

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

SECTION 4: First aid measures

- **4.1 Description of first aid measures**
- **General information**
Instantly remove any clothing soiled by the product.
Personal protection for the First Aider.
- **After skin contact** The product is not skin irritating.
- **After eye contact**
Rinse opened eye for several minutes under running water (at least 15 minutes).
Remove contact lenses, if present and easy to do.
Protect uninjured eye.
Call a doctor immediately.
- **After swallowing** In case of persistent symptoms consult doctor.
- **4.2 Most important symptoms and effects, both acute and delayed**
No further relevant information available.
- **4.3 Indication of any immediate medical attention and special treatment needed**
Basic relief, decontamination, symptomatic treatment.

SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents** Use fire fighting measures that suit the environment.

(Contd. on page 3)

**Safety data sheet
according to UK REACH**

Printing date 31.08.2026

Version 1.2

Revision: 31.08.2026

Trade name: RA-4 Start-Up Kit BX Part A

(Contd. of page 2)

- **For safety reasons unsuitable extinguishing agents**
No strong water jet (to avoid material dispersion).
- **5.2 Special hazards arising from the substance or mixture**
No further relevant information available.
- **5.3 Advice for firefighters**
- **Protective equipment:**
Do not inhale explosion gases or combustion gases.
Put on breathing apparatus.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
Put on breathing apparatus.
- **6.2 Environmental precautions:** No special measures required.
- **6.3 Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **6.4 Reference to other sections**
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for information on disposal.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling** No special precautions necessary if used correctly.
- **Information about protection against explosions and fires:**
No special measures required.
Compliance with the general rules of preventive workplace fire safety.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and containers:** No special requirements.
- **Information about storage in one common storage facility:**
Keep away from foodstuffs, beverages and food.
Do not store together with acids.
- **Further information about storage conditions:**
Keep container tightly sealed.
Store in a cool place.
- **Recommended storage temperature:** 5-25°C
- **Storage class**
(German Technical Rule for Hazardous Substance – TRGS 510)
12
- **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

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

(Contd. on page 4)

Safety data sheet according to UK REACH

Printing date 31.08.2026

Version 1.2

Revision: 31.08.2026

Trade name: RA-4 Start-Up Kit BX Part A

(Contd. of page 3)

· 8.2 Exposure controls

· Personal protective equipment

· General protective and hygienic measures

The usual precautionary measures should be adhered to general rules for handling chemicals.

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: Not required

· Protection of hands:

Protective gloves.

The protective gloves to be used must comply with the specifications of the (EU) 2016/425 and the resultant standard EN 374.

This recommendation applies only to the product stated in the Safety Data Sheet and supplied by us as well as to the purpose specified by us.

Only use chemical-protective gloves with CE-labelling of category III.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

Thickness	Breakthrough time	
	(mm)	(min)
Nitril rubber	0,38	> 480
Neoprene	0,65	> 240
Butyl rubber	0,36	> 480

Avoid natural rubber gloves.

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material 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.

· As protection from splashes gloves made of the following materials are suitable:

Synthetic gloves

Value for the permeation: Level:

≥ 3 (60 min)

· Eye protection: Safety glasses

· Body protection: Protective work clothing.

SECTION 9: Physical and chemical properties

· 9.1 Information on basic physical and chemical properties

· General Information

· Appearance:

Form:	Liquid
Colour:	Light yellow
Odour:	Characteristic
Odour threshold:	Not determined

· pH-value at 20 °C: 5.25

(Contd. on page 5)

Safety data sheet according to UK REACH

Printing date 31.08.2026

Version 1.2

Revision: 31.08.2026

Trade name: RA-4 Start-Up Kit BX Part A

(Contd. of page 4)

- **Change in condition**
- Melting point/freezing point: Not determined
- Initial boiling point and boiling range: 100 °C

- **Flash point:** Not applicable

- **Inflammability (solid, gaseous)** Not applicable

- **Decomposition temperature:** Not determined

- **Self-inflammability:** Product is not selfigniting.

- **Explosive properties:** Product is not explosive.

- **Critical values for explosion:**
- Lower: Not determined
- Upper: Not determined

- **Vapour pressure at 20 °C:** 23 hPa

- **Density at 20 °C** 1.29 g/cm³
- **Relative density** Not determined
- **Vapour density** Not determined
- **Evaporation rate** Not determined

- **Solubility in / Miscibility with Water:** miscible

- **Partition coefficient: n-octanol/water:** Not determined

- **Viscosity:**
- dynamic: Not determined
- kinematic: Not determined

- **Solvent content:**
- Water: 18.5 %

- Solids content: 41.5 %

- **9.2 Other information** No further relevant information available.

SECTION 10: Stability and reactivity

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
- **10.3 Possibility of hazardous reactions** No dangerous reactions known
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:** No dangerous decomposition products known

SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity** Based on available data, the classification criteria are not met.

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

7783-18-8 ammonium thiosulphate

Oral LD50 1,098 mg/kg (guinea pig)

(Contd. on page 6)

Safety data sheet according to UK REACH

Printing date 31.08.2026

Version 1.2

Revision: 31.08.2026

Trade name: RA-4 Start-Up Kit BX Part A

(Contd. of page 5)

	2,890 mg/kg (rat)
--	-------------------

- **Primary irritant effect:**
- **Skin corrosion/irritation** Based on available data, the classification criteria are not met.
- **Serious eye damage/irritation**
Causes serious eye irritation.
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- **Additional toxicological information:**
This statement was deduced from the properties of the single components.
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

- **12.1 Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **12.2 Persistence and degradability** No further relevant information available.
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
- **Ecotoxicological effects:** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
This statement was deduced from the properties of the single components.
Water hazard class 2 (German Regulation) (Self-assessment): Water-endangering.
Do not allow product to reach ground water, water bodies or sewage system.
Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system.
At present there are no ecotoxicological assessments.
The product does not contain organically bounded halogens (AOX-free).
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable
- **vPvB:** Not applicable
- **12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **Recommendation**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
Must be specially treated under adherence to official regulations.
Small amounts may be diluted with plenty of water and washed away. Dispose of bigger amounts in accordance with Local Authority requirements.
- **Uncleaned packagings:**
- **Recommendation:**
Non contaminated packagings can be used for recycling.

(Contd. on page 7)

Safety data sheet according to UK REACH

Printing date 31.08.2026

Version 1.2

Revision: 31.08.2026

Trade name: RA-4 Start-Up Kit BX Part A

(Contd. of page 6)

Empty contaminated packagings thoroughly. They can be recycled after thorough and proper cleaning.

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

SECTION 14: Transport information

- | | |
|--|----------------|
| · 14.1 UN-Number | |
| · ADR/RID, IMDG, IATA | Void |
| · 14.2 UN proper shipping name | |
| · ADR/RID, IMDG, IATA | Void |
| · 14.3 Transport hazard class(es) | |
| · ADR/RID, ADN, IMDG, IATA | |
| · Class | Void |
| · 14.4 Packing group | |
| · ADR/RID, IMDG, IATA | Void |
| · 14.5 Environmental hazards: | Not applicable |
| · 14.6 Special precautions for user | Not applicable |
| · 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code | Not applicable |
| · UN "Model Regulation": | Void |

SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Poisons Act**

· **Regulated explosives precursors**

None of the ingredients is listed.

· **Regulated poisons**

None of the ingredients is listed.

· **Reportable explosives precursors**

None of the ingredients is listed.

· **Reportable poisons**

None of the ingredients is listed.

· **Labelling according to Regulation (EC) No 1272/2008**

The product is classified and labelled according to the GB CLP regulation.

· **Hazard pictograms**



GHS07

· **Signal word** Warning

· **Hazard statements**

H319 Causes serious eye irritation.

(Contd. on page 8)

Safety data sheet according to UK REACH

Printing date 31.08.2026

Version 1.2

Revision: 31.08.2026

Trade name: RA-4 Start-Up Kit BX Part A

(Contd. of page 7)

· **Precautionary statements**

- P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P337+P313 If eye irritation persists: Get medical advice/attention.

· **Directive 2012/18/EU**

- **Named dangerous substances - ANNEX I** None of the ingredients is listed.

· **National regulations**

- Employment restrictions under the German Youth Employment Protection Act (JArbSchG) must be observed.
- Employment restrictions under the German Maternity Protection Act (MuSchG) must be observed.

- **Water hazard class:** Water hazard class 2 (Self-assessment): water-endangering.

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

SECTION 16: Other information

· **Relevant phrases**

- H319 Causes serious eye irritation.

· **Abbreviations and acronyms:**

- ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
- IMDG: International Maritime Code for Dangerous Goods
- IATA: International Air Transport Association
- GHS: Globally Harmonised System of Classification and Labelling of Chemicals
- EINECS: European Inventory of Existing Commercial Chemical Substances
- ELINCS: European List of Notified Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent
- PBT: Persistent, Bioaccumulative and Toxic
- vPvB: very Persistent and very Bioaccumulative
- Eye Irrit. 2: Serious eye damage/eye irritation – Category 2

· **Sources**

- Internal physical tests, MSDS of the ingredients,
- Information system on hazardous substances of the German Social Accident Insurance (GESTIS-database on hazardous substances), <http://www.dguv.de/ifa/en/gestis/stoffdb/index.jsp>
- applicable EEC directives:
 - 1907/2006
 - 1272/2008

Safety data sheet according to UK REACH

Printing date 31.08.2026

Version 1.2

Revision: 31.08.2026

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

1.1 Product identifier

Trade name: **RA-4 Start-Up Kit BX Part B**

Article number: 12561-B

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

To this day we do not have any information about the identified use at the moment. These data are available we will add these to the safety data sheet.

Application of the substance / the mixture Photo chemicals

Uses advised against

All applications that are not expressly named as permitted uses in this safety data sheet are considered prohibited.

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier:

Calbe Chemie GmbH
 Stadtfeld 31
 D-39240 Calbe
 Phone: +49 (0)39291 425-0
 Fax: +49 (0)39291 425-25
 e-mail: info@calbe-chemie.de
www.calbe-chemie.de

Informing department: E-Mail: info@calbe-chemie.de

1.4 Emergency telephone number:

Phone: +49 (0) 700-24112112 (CAL)
 Phone: +1 872 5888271(CAL)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008



GHS07

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2 H319 Causes serious eye irritation.

Additional information:

The full text of the classification and labelling elements mentioned is given in Section 16.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008

The product is classified and labelled according to the GB CLP regulation.

Hazard pictograms



GHS07

Signal word Warning

Hazard statements

H315 Causes skin irritation.

H319 Causes serious eye irritation.

Precautionary statements

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

P302+P352 IF ON SKIN: Wash with plenty of water.

(Contd. on page 2)

GB

Safety data sheet according to UK REACH

Printing date 31.08.2026

Version 1.2

Revision: 31.08.2026

Trade name: RA-4 Start-Up Kit BX Part B

(Contd. of page 1)

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P313 If eye irritation persists: Get medical advice/attention.

· **Additional information:**

Product contains: Reportable explosives precursors. Making available, introduction, possession and use according to Regulation (EU) 2019/1148, Article 9.

· **2.3 Other hazards**

No special hazards known if the regulations/instructions for storage and handling are observed. Where applicable, this section provides information on other hazards that do not result in classification but may contribute to the overall hazards of the substance or mixture.

The product does not contain any substance above legal limits that fulfils the criteria for PBT (persistent, bioaccumulative and toxic) or vPvB (very persistent and very bioaccumulative). The product does not contain any substance above the legal limits that has been included in the list drawn up in accordance with Article 59(1) of Regulation (EC) No 1907/2006 due to endocrine disrupting properties or that has endocrine disrupting or endocrine disrupting properties in accordance with Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable

· **vPvB:** Not applicable

SECTION 3: Composition/information on ingredients

· **3.2 Mixtures**

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

· **Dangerous components:**

CAS: 7697-37-2	nitric acid	0.5 - 2%
EINECS: 231-714-2	⚠ Ox. Liq. 2, H272	
Index number: 007-030-00-3	⚠ Acute Tox. 2, H330	
REACH Reg. no.: 01-2119487297-23-xxxx	⚠ Met. Corr.1, H290; Skin Corr. 1A, H314 ⚠ Acute Tox. 4, H302	

· **Additional information** For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

· **4.1 Description of first aid measures**

· **General information**

Instantly remove any clothing soiled by the product.

Personal protection for the First Aider.

· **After skin contact**

Instantly wash with water and soap and rinse thoroughly.

Instantly rinse with water.

· **After eye contact**

Rinse opened eye for several minutes under running water (at least 15 minutes).

Remove contact lenses, if present and easy to do.

Protect uninjured eye.

Call a doctor immediately.

· **After swallowing** In case of persistent symptoms consult doctor.

· **4.2 Most important symptoms and effects, both acute and delayed**

No further relevant information available.

(Contd. on page 3)

Safety data sheet according to UK REACH

Printing date 31.08.2026

Version 1.2

Revision: 31.08.2026

Trade name: RA-4 Start-Up Kit BX Part B

(Contd. of page 2)

- **4.3 Indication of any immediate medical attention and special treatment needed**
Basic relief, decontamination, symptomatic treatment.

SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents** Use fire fighting measures that suit the environment.
- **For safety reasons unsuitable extinguishing agents**
No strong water jet (to avoid material dispersion).
- **5.2 Special hazards arising from the substance or mixture**
No further relevant information available.
- **5.3 Advice for firefighters**
- **Protective equipment:** Do not inhale explosion gases or combustion gases.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures** Not required
- **6.2 Environmental precautions:** No special measures required.
- **6.3 Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **6.4 Reference to other sections**
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for information on disposal.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**
- **Information about protection against explosions and fires:**
No special measures required.
Compliance with the general rules of preventive workplace fire safety.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and containers:** No special requirements.
- **Information about storage in one common storage facility:**
Keep away from foodstuffs, beverages and food.
- **Further information about storage conditions:**
Keep container tightly sealed.
Store in a cool place.
- **Recommended storage temperature:** 5-25°C
- **Storage class**
(German Technical Rule for Hazardous Substance – TRGS 510)
12
- **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

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

(Contd. on page 4)

Safety data sheet according to UK REACH

Printing date 31.08.2026

Version 1.2

Revision: 31.08.2026

Trade name: RA-4 Start-Up Kit BX Part B

(Contd. of page 3)

· **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.

7697-37-2 nitric acid

WEL Short-term value: 2.6 mg/m³, 1 ppm

· **Additional information:** The lists that were valid during the compilation were used as basis.

· **8.2 Exposure controls**

· **Personal protective equipment**

· **General protective and hygienic measures**

The usual precautionary measures should be adhered to general rules for handling chemicals.

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.

Do not eat, drink or smoke while working.

· **Breathing equipment:** Not required

· **Protection of hands:**

Protective gloves.

The protective gloves to be used must comply with the specifications of the (EU) 2016/425 and the resultant standard EN 374.

This recommendation applies only to the product stated in the Safety Data Sheet and supplied by us as well as to the purpose specified by us.

Only use chemical-protective gloves with CE-labelling of category III.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

Thickness	Breakthrough time	
	(mm)	(min)
Nitril rubber	0,38	> 480
Neoprene	0,65	> 240
Butyl rubber	0,36	> 480

Avoid natural rubber gloves.

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material 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.

· **As protection from splashes gloves made of the following materials are suitable:**

Synthetic gloves

Value for the permeation: Level:

≥ 3 (60 min)

· **Eye protection:** Safety glasses

· **Body protection:** Protective work clothing.

SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form: Liquid

(Contd. on page 5)

Safety data sheet according to UK REACH

Printing date 31.08.2026

Version 1.2

Revision: 31.08.2026

Trade name: RA-4 Start-Up Kit BX Part B

(Contd. of page 4)

· Colour:	Red-brown
· Odour:	Product specific
· Odour threshold:	Not determined
· pH-value at 20 °C:	6.7
· Change in condition	
Melting point/freezing point:	Not determined
Initial boiling point and boiling range:	100 °C
· Flash point:	Not applicable
· Inflammability (solid, gaseous)	Not applicable
· Decomposition temperature:	Not determined
· Self-inflammability:	Product is not selfigniting.
· Explosive properties:	Product is not explosive.
· Critical values for explosion:	
Lower:	Not determined
Upper:	Not determined
· Vapour pressure at 20 °C:	23 hPa
· Density at 20 °C	1.13 g/cm ³
· Relative density	Not determined
· Vapour density	Not determined
· Evaporation rate	Not determined
· Solubility in / Miscibility with	
Water:	miscible
· Partition coefficient: n-octanol/water:	Not determined
· Viscosity:	
dynamic:	Not determined
kinematic:	Not determined
· Solvent content:	
Water:	52.2 %
Solids content:	46.5 %
· 9.2 Other information	No further relevant information available.

SECTION 10: Stability and reactivity

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
- **10.3 Possibility of hazardous reactions** No dangerous reactions known
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:** No dangerous decomposition products known

GB

(Contd. on page 6)

Safety data sheet according to UK REACH

Printing date 31.08.2026

Version 1.2

Revision: 31.08.2026

Trade name: RA-4 Start-Up Kit BX Part B

(Contd. of page 5)

SECTION 11: Toxicological information

11.1 Information on toxicological effects

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

LD/LC50 values that are relevant for classification:

ATE (Acute Toxicity Estimates)

Inhalative	LC50/4 h	204 mg/l (rat)
------------	----------	----------------

7697-37-2 nitric acid

Oral	LD50	430 mg/kg (worker)
Inhalative	LC50/4 h	2.65 mg/l (rat)

Primary irritant effect:

Skin corrosion/irritation

Causes skin irritation.

Serious eye damage/irritation

Causes serious eye irritation.

Respiratory or skin sensitisation

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

Additional toxicological information:

This statement was deduced from the properties of the single components.

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)

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

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

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

STOT-single exposure Based on available data, the classification criteria are not met.

STOT-repeated exposure Based on available data, the classification criteria are not met.

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

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity:

7697-37-2 nitric acid

LC50/96 h	72 mg/l (Gambusia affinis)
EC50/48 h	0.492 mg/l (Daphnia magna)

12.2 Persistence and degradability No further relevant information available.

12.3 Bioaccumulative potential No further relevant information available.

12.4 Mobility in soil No further relevant information available.

Ecotoxicological effects: No further relevant information available.

Additional ecological information:

General notes:

This statement was deduced from the properties of the single components.

Water hazard class 2 (German Regulation) (Self-assessment): Water-endangering.

Do not allow product to reach ground water, water bodies or sewage system.

Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system.

At present there are no ecotoxicological assessments.

The product does not contain organically bounded halogens (AOX-free).

12.5 Results of PBT and vPvB assessment

PBT: Not applicable

vPvB: Not applicable

(Contd. on page 7)

Safety data sheet according to UK REACH

Printing date 31.08.2026

Version 1.2

Revision: 31.08.2026

Trade name: RA-4 Start-Up Kit BX Part B

(Contd. of page 6)

- **12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

· 13.1 Waste treatment methods

· Recommendation

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Must be specially treated under adherence to official regulations.

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

· Uncleaned packagings:

· Recommendation:

Non contaminated packagings can be used for recycling.

Empty contaminated packagings thoroughly. They can be recycled after thorough and proper cleaning.

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

SECTION 14: Transport information

· 14.1 UN-Number

· ADR/RID, IMDG, IATA Void

· 14.2 UN proper shipping name

· ADR/RID, IMDG, IATA Void

· 14.3 Transport hazard class(es)

· ADR/RID, ADN, IMDG, IATA

· Class Void

· 14.4 Packing group

· ADR/RID, IMDG, IATA Void

· 14.5 Environmental hazards: Not applicable

· 14.6 Special precautions for user Not applicable

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

Not applicable

· UN "Model Regulation": Void

SECTION 15: Regulatory information

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

· Poisons Act

· Regulated explosives precursors

7697-37-2	nitric acid	3%
-----------	-------------	----

· Regulated poisons

None of the ingredients is listed.

· Reportable explosives precursors

None of the ingredients is listed.

(Contd. on page 8)

Safety data sheet according to UK REACH

Printing date 31.08.2026

Version 1.2

Revision: 31.08.2026

Trade name: RA-4 Start-Up Kit BX Part B

(Contd. of page 7)

· Reportable poisons

None of the ingredients is listed.

· Labelling according to Regulation (EC) No 1272/2008

The product is classified and labelled according to the GB CLP regulation.

· Hazard pictograms



GHS07

· Signal word Warning

· Hazard statements

H315 Causes skin irritation.

H319 Causes serious eye irritation.

· Precautionary statements

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

P302+P352 IF ON SKIN: Wash with plenty of water.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P313 If eye irritation persists: Get medical advice/attention.

· Directive 2012/18/EU

· Named dangerous substances - ANNEX I None of the ingredients is listed.

· National regulations

Employment restrictions under the German Youth Employment Protection Act (JArbSchG) must be observed.

Employment restrictions under the German Maternity Protection Act (MuSchG) must be observed.

· Water hazard class: Water hazard class 2 (Self-assessment): water-endangering.

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

SECTION 16: Other information

· Relevant phrases

H272 May intensify fire; oxidiser.

H290 May be corrosive to metals.

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

H330 Fatal if inhaled.

· Abbreviations and acronyms:

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

ATE: Acute toxicity estimate values

Ox. Liq. 2: Oxidizing liquids – Category 2

Met. Corr. 1: Corrosive to metals – Category 1

Acute Tox. 4: Acute toxicity – Category 4

Acute Tox. 2: Acute toxicity – Category 2

Skin Corr. 1A: Skin corrosion/irritation – Category 1A

(Contd. on page 9)

**Safety data sheet
according to UK REACH**

Printing date 31.08.2026

Version 1.2

Revision: 31.08.2026

Trade name: RA-4 Start-Up Kit BX Part B

Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2

(Contd. of page 8)

Sources

Internal physical tests, MSDS of the ingredients,
Information system on hazardous substances of the German Social Accident Insurance
(GESTIS-database on hazardous substances), <http://www.dguv.de/ifa/en/gestis/stoffdb/index.jsp>
applicable EEC directives:

- 1907/2006
- 1272/2008

GB