

Griess Reagent

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830
Date of issue: 6/22/2012 Revision date: 1/25/2019 Supersedes: 2/8/2018 Version: 2.1

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

1.1. Product identifier

Product form : Mixture
Product name : Griess Reagent
EC-No. : 215-981-2
CAS-No. : 1465-25-4
Product code : 90027439
Formula : C12H14N2
Synonyms : SP00461

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

1.2.1. Relevant identified uses

Industrial/Professional use spec : For professional use only
Industrial
Laboratory chemicals

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Scafell Organics
Molekula Ltd
Lingfield Way
Darlington - England
T +44 (0) 1949 823777 / +44 (0) 7590 545705
info@molekula.com / kbowen@molekula.com - www.molekula.com

1.4. Emergency telephone number

Emergency number : +44 (0) 7590 545705

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Skin corrosion/irritation, Category 2 H315
Serious eye damage/eye irritation, Category 2 H319
Specific target organ toxicity — Single exposure, Category 3, H335
Respiratory tract irritation
Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS07

Signal word (CLP) :

Warning

Hazard statements (CLP) :

H315 - Causes skin irritation.
H319 - Causes serious eye irritation.
H335 - May cause respiratory irritation.

Precautionary statements (CLP) :

P261 - Avoid breathing vapours.
P264 - Wash hands, forearms and face thoroughly after handling.
P280 - Wear protective gloves/protective clothing/eye protection/face 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.
P308+P311 - IF exposed or concerned: Call a POISON CENTER or doctor.
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.

EUH-statements :

EUH208 - Contains sulphanilic acid; 4-aminobenzenesulphonic acid(121-57-3). May produce an allergic reaction.

2.3. Other hazards

No additional information available

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SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

| Name | Product identifier | % | Classification according to Regulation (EC) No. 1272/2008 [CLP] |
|--|--|---------|---|
| Orthophosphoric acid | (CAS-No.) 7664-38-2 (EC-No.) 231-633-2 (EC Index-No.) 015-011-00-6 | >= 2.5 | Skin Corr. 1B, H314 |
| sulphanilic acid; 4-aminobenzenesulphonic acid | (CAS-No.) 121-57-3 (EC-No.) 204-482-5 (EC Index-No.) 612-014-00-X | >= 0.5 | Eye Irrit. 2, H319 Skin Irrit. 2, H315 Skin Sens. 1, H317 |
| N-(1-Naphthyl)ethylenediamine dihydrochloride | (CAS-No.) 1465-25-4 (EC-No.) 215-981-2 | >= 0.05 | Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 |

Specific concentration limits:

| Name | Product identifier | Specific concentration limits |
|----------------------|--|--|
| Orthophosphoric acid | (CAS-No.) 7664-38-2 (EC-No.) 231-633-2 (EC Index-No.) 015-011-00-6 | (10 =<C < 25) Skin Irrit. 2, H315 (10 =<C < 25) Eye Irrit. 2, H319 (C >= 25) Skin Corr. 1B, H314 |

Full text of H-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

| | |
|---------------------------------------|---|
| First-aid measures general | : Never give anything by mouth to an unconscious person. Do not leave affected person unattended. If possible show this sheet, if not available show packaging or label. |
| First-aid measures after inhalation | : Assure fresh air breathing. Allow the victim to rest. |
| First-aid measures after skin contact | : After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water. Do not remove clothing if it sticks to the skin. If skin irritation or rash occurs: Get medical advice/attention. |
| First-aid measures after eye contact | : Rinse immediately with plenty of water. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if pain, blinking or redness persists. |
| First-aid measures after ingestion | : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. |

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

| | |
|-------------------------------------|---|
| Symptoms/effects | : May cause an allergic skin reaction. |
| Symptoms/effects after inhalation | : Inhalation may cause irritation (cough, short breathing, difficulty in breathing). |
| Symptoms/effects after skin contact | : May cause an allergic skin reaction. irritation (itching, redness, blistering). |
| Symptoms/effects after eye contact | : Causes serious eye irritation. redness, itching, tears. More severe symptoms are also possible. |
| Symptoms/effects after ingestion | : Ingestion may cause nausea and vomiting. May produce an allergic reaction. |

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

| | |
|--------------------------------|--|
| Suitable extinguishing media | : Foam. Dry powder. Carbon dioxide. Water spray. Sand. |
| Unsuitable extinguishing media | : Do not use a heavy water stream. |

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products in case of fire : Carbon oxides (CO, CO₂). hydrogen chloride. Nitrogen oxides. Sulphur oxides.

5.3. Advice for firefighters

| | |
|--------------------------------|---|
| Precautionary measures fire | : Eliminate all ignition sources if safe to do so. Exposure to fire/heat: seal off low-lying areas. |
| Firefighting instructions | : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the environment. Do not approach fire except upwind and only with proper skin and respiratory protection (supplied air only). Use extinguishing agent suitable for surrounding fire. |
| Protection during firefighting | : Do not enter fire area without proper protective equipment, including respiratory protection. |
| Other information | : Warn all persons of toxic hazard. |

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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Isolate from fire, if possible, without unnecessary risk. Avoid exposure, obtain special instructions before use.

6.1.1. For non-emergency personnel

Protective equipment : Wear recommended personal protective equipment.
Emergency procedures : Evacuate unnecessary personnel. Mark out the contaminated area with signs and prevent access to unauthorized personnel. Avoid contact with skin, eyes and clothing. Do not breathe vapours. Do not touch or walk on the spilled product.
Measures in case of dust release : Shelter from vapours by keeping upwind. Ventilate the area thoroughly, especially low lying areas (basements, workpits etc).

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection. Use self-contained breathing apparatus and chemically protective clothing.
Emergency procedures : Ventilate area. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous. Stop leak if safe to do so.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Provide good ventilation in process area to prevent formation of vapour.
Hygiene measures : Contaminated work clothing should not be allowed out of the workplace. Take off immediately all contaminated clothing and wash it before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Ensure adequate ventilation, especially in confined areas.
Storage conditions : Keep only in the original container in a cool, well ventilated place away from : Direct sunlight, Heat sources. Keep container tightly closed.
Incompatible products : alcohols. Acids. Aldehydes. Halogens. Strong oxidisers.
Incompatible materials : Sources of ignition. Direct sunlight.
Information on mixed storage : Do not store near oxidizing agents or acidic material.
Storage area : Store at ambient temperature.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

| Orthophosphoric acid (7664-38-2) | | |
|----------------------------------|-------------------------------|--------------------------------------|
| United Kingdom | Local name | Orthophosphoric acid |
| United Kingdom | WEL TWA (mg/m ³) | 1 mg/m ³ |
| United Kingdom | WEL STEL (mg/m ³) | 2 mg/m ³ |
| United Kingdom | Regulatory reference | EH40/2005 (Third edition, 2018). HSE |

8.2. Exposure controls

Appropriate engineering controls:

Handle in accordance with good industrial hygiene and safety procedures. Floors should be impervious, resistant to liquids and easy to clean.

Personal protective equipment:

Wear recommended personal protective equipment. Avoid all unnecessary exposure.

Hand protection:

The protective gloves to be used must comply with the specifications of the regulation 2016/425 and the resultant standard EN 374. Always wash hands after handling the product. Wear protective gloves.

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| Type | Material | Permeation | Thickness (mm) | Penetration | Standard |
|------|----------------------|-------------------|----------------|-------------|----------|
| | Nitrile rubber (NBR) | 6 (> 480 minutes) | 0.11mm | | EN 374 |

Eye protection:

Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure. Use eye protection according to EN 166, designed to protect against liquid splashes. Chemical goggles or safety glasses

| Type | Use | Characteristics | Standard |
|----------------|------------------|-------------------|----------|
| Safety glasses | vapours, Droplet | With side shields | EN 166 |

Skin and body protection:

Emergency safety showers should be available in the immediate vicinity of any potential exposure. Keep suitable chemically resistant protective clothing readily available for emergency use

| Type | Standard |
|----------------------------------|----------|
| Long sleeved protective clothing | EN 14605 |

Respiratory protection:

Keep self contained breathing apparatus readily available for emergency use. In case of inadequate ventilation wear respiratory protection. Wear appropriate mask

| Device | Filter type | Condition | Standard |
|--|------------------|--|----------|
| Respiratory protective device with a particle filter | Type P1, Type P2 | Vapour protection, Protection for Liquid particles | EN 143 |

Other information:

Do not eat, drink or smoke when using this product. Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| | |
|--|---------------------|
| Physical state | : Liquid |
| Molecular mass | : 259.17 g/mol |
| Colour | : Colourless. |
| Odour | : characteristic. |
| Odour threshold | : No data available |
| pH | : No data available |
| Relative evaporation rate (butylacetate=1) | : No data available |
| Melting point | : No data available |
| Freezing point | : No data available |
| Boiling point | : No data available |
| Flash point | : No data available |
| Auto-ignition temperature | : No data available |
| Decomposition temperature | : No data available |
| Flammability (solid, gas) | : Non flammable. |
| Vapour pressure | : No data available |
| Relative vapour density at 20 °C | : No data available |
| Relative density | : 1.03 |
| Solubility | : soluble in water. |
| Log Pow | : No data available |
| Viscosity, kinematic | : No data available |
| Viscosity, dynamic | : No data available |
| Explosive properties | : No data available |
| Oxidising properties | : No data available |
| Explosive limits | : No data available |

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

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10.2. Chemical stability

Stable under recommended handling and storage conditions (see section 7).

10.3. Possibility of hazardous reactions

None under normal use.

10.4. Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

10.5. Incompatible materials

alcohols. Acids. Aldehydes. Halogens. Strong oxidizers.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced. Thermal decomposition generates : Carbon oxides (CO, CO₂). hydrogen chloride. Nitrogen oxides. Sulphur oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified

Acute toxicity (dermal) : Not classified

Acute toxicity (inhalation) : Not classified

sulphanilic acid; 4-aminobenzenesulphonic acid (121-57-3)

| | |
|---------------|-------------|
| LD50 oral rat | 12300 mg/kg |
|---------------|-------------|

| | |
|-----------------|--------------|
| LD50 dermal rat | > 2000 mg/kg |
|-----------------|--------------|

Skin corrosion/irritation : Causes skin irritation.

Serious eye damage/irritation : Causes serious eye irritation.

Respiratory or skin sensitisation : Not classified

Additional information : Based on available data, the classification criteria are not met

Germ cell mutagenicity : Not classified

Additional information : Based on available data, the classification criteria are not met

Carcinogenicity : Not classified

Additional information : Based on available data, the classification criteria are not met

Reproductive toxicity : Not classified

Additional information : Based on available data, the classification criteria are not met

STOT-single exposure : May cause respiratory irritation.

STOT-repeated exposure : Not classified

Additional information : Based on available data, the classification criteria are not met

sulphanilic acid; 4-aminobenzenesulphonic acid (121-57-3)

| | |
|----------------------------|---------------------------|
| NOAEL (oral, rat, 90 days) | 1000 mg/kg bodyweight/day |
|----------------------------|---------------------------|

Aspiration hazard : Not classified

Additional information : Based on available data, the classification criteria are not met

Potential adverse human health effects and symptoms : Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1. Toxicity

Acute aquatic toxicity : Not classified

Chronic aquatic toxicity : Not classified

sulphanilic acid; 4-aminobenzenesulphonic acid (121-57-3)

| | |
|-------------|---|
| LC50 fish 1 | > 100 mg/l 96h - Danio rerio (zebra fish) |
|-------------|---|

| | |
|----------------|--|
| EC50 Daphnia 1 | 23 mg/l 48h - Daphnia magna (Water flea) |
|----------------|--|

| | |
|--------------------|---|
| EC50 72h algae (1) | 97 mg/l 72h - Desmodesmus subspicatus (green algae) |
|--------------------|---|

12.2. Persistence and degradability

Griess Reagent (1465-25-4)

| | |
|-------------------------------|------------------|
| Persistence and degradability | Not established. |
|-------------------------------|------------------|

N-(1-Naphthyl)ethylenediamine dihydrochloride (1465-25-4)

| | |
|-------------------------------|--------------------|
| Persistence and degradability | No data available. |
|-------------------------------|--------------------|

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| Orthophosphoric acid (7664-38-2) | |
|----------------------------------|--------------------|
| Persistence and degradability | No data available. |

| sulphanilic acid; 4-aminobenzenesulphonic acid (121-57-3) | |
|---|------------------------|
| Persistence and degradability | Readily biodegradable. |
| Biodegradation | 100 % 72h |

12.3. Bioaccumulative potential

| Griess Reagent (1465-25-4) | |
|----------------------------|--------------------|
| Bioaccumulative potential | No data available. |

| N-(1-Naphthyl)ethylenediamine dihydrochloride (1465-25-4) | |
|---|--------------------|
| Bioaccumulative potential | No data available. |

| Orthophosphoric acid (7664-38-2) | |
|----------------------------------|---------------------------------|
| Bioaccumulative potential | Not potentially bioaccumulable. |

| sulphanilic acid; 4-aminobenzenesulphonic acid (121-57-3) | |
|---|---------------------------------|
| Log Pow | -2.297 at 25.C |
| Bioaccumulative potential | Not potentially bioaccumulable. |

12.4. Mobility in soil

| sulphanilic acid; 4-aminobenzenesulphonic acid (121-57-3) | |
|---|-------------------|
| Surface tension | 72.3 mN/m at 20.C |

12.5. Results of PBT and vPvB assessment

| Component | |
|---|---|
| Orthophosphoric acid (7664-38-2) | This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII |
| sulphanilic acid; 4-aminobenzenesulphonic acid (121-57-3) | This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII |

12.6. Other adverse effects

Additional information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.
Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

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

| ADR | IMDG | IATA | ADN | RID |
|---|---------------|---------------|---------------|---------------|
| 14.1. UN number | | | | |
| Not regulated | Not regulated | Not regulated | Not regulated | Not regulated |
| 14.2. UN proper shipping name | | | | |
| Not regulated | Not regulated | Not regulated | Not regulated | Not regulated |
| 14.3. Transport hazard class(es) | | | | |
| Not regulated | Not regulated | Not regulated | Not regulated | Not regulated |
| 14.4. Packing group | | | | |
| Not regulated | Not regulated | Not regulated | Not regulated | Not regulated |
| 14.5. Environmental hazards | | | | |
| Not regulated | Not regulated | Not regulated | Not regulated | Not regulated |

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No supplementary information available

14.6. Special precautions for user

Overland transport

Not regulated

Transport by sea

Not regulated

Air transport

Not regulated

Inland waterway transport

Not regulated

Rail transport

Not regulated

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

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

Contains no REACH substances with Annex XVII restrictions

Contains no substance on the REACH candidate list

Contains no REACH Annex XIV substances

Directive 2012/18/EU (SEVESO III)

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out for the substance or the mixture by the supplier

SECTION 16: Other information

Data sources : REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Other information : None.

Full text of H- and EUH-statements:

| | |
|---------------|--|
| Eye Irrit. 2 | Serious eye damage/eye irritation, Category 2 |
| Skin Corr. 1B | Skin corrosion/irritation, Category 1B |
| Skin Irrit. 2 | Skin corrosion/irritation, Category 2 |
| Skin Sens. 1 | Skin sensitisation, Category 1 |
| STOT SE 3 | Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation |
| H314 | Causes severe skin burns and eye damage. |
| H315 | Causes skin irritation. |
| H317 | May cause an allergic skin reaction. |
| H319 | Causes serious eye irritation. |
| H335 | May cause respiratory irritation. |
| EUH208 | Contains sulphanilic acid; 4-aminobenzenesulphonic acid(121-57-3). May produce an allergic reaction. |

SDS EU (REACH Annex II)

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