

Safety Data Sheet

According to EC Directive 91/155/EEC

Date of issue: 05.07.2004
Supersedes edition of 04.09.2003

1. Identification of the substance/preparation and of the company/undertaking

Identification of the product

Catalogue No.: 114963
Product name: Crack Set 20 for the digestion of nitrogen (total)
90 digestions Spectroquant®
R-1

Use of the substance/preparation

Reagent for analysis

Company/undertaking identification

Company: Merck KGaA * 64271 Darmstadt * Germany * Tel: +49 (0)6151/72-0
Emergency telephone No.: +49 (0)6151/72112 * Fax: +49 (0)6151/72-7780

2. Composition/information on ingredients

Mixture of inorganic compounds.

Hazardous ingredients:

Name according to EC Directives:

CAS-No.	EC No.	EC-Index-No.	Classification	Content:
Potassium persulfate 7727-21-1	231-781-8	016-061-00-1	O; R8 Xn; R22-42/43 Xi; R36/37/38	≥ 50 %
Potassium carbonate 584-08-7	209-529-3		Xi; R36/37/38	≥ 20 - < 50 %

(Full text of R-Phrases in heading 16)

3. Hazards identification

Contact with combustible material may cause fire. Harmful if swallowed. Irritating to eyes, respiratory system and skin. May cause sensitization by inhalation and skin contact.

4. First aid measures

After inhalation: fresh air. Consult doctor if feeling unwell.
After skin contact: wash off with plenty of water. Remove contaminated clothing.
After eye contact: rinse out with plenty of water with the eyelid held wide open. Call in ophthalmologist.
After swallowing: immediately make victim drink plenty of water. Call in physician.

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5. Fire-fighting measures

Suitable extinguishing media:
In adaption to materials stored in the immediate neighbourhood.

Special risks:
Non-combustible. Fire-promoting. Keep away from combustible materials. Ambient fire may liberate hazardous vapours. The following may develop in event of fire: sulfur oxides.

Special protective equipment for fire fighting:
Do not stay in dangerous zone without self-contained breathing apparatus. In order to avoid contact with skin, keep a safety distance and wear suitable protective clothing.

Other information:
Contain escaping vapours with water. Prevent fire-fighting water from entering surface water or groundwater.

6. Accidental release measures

Person-related precautionary measures:
Avoid inhalation of dusts. Avoid substance contact. Ensure supply of fresh air in enclosed rooms.

Environmental-protection measures:
Do not allow to enter sewerage system.

Procedures for cleaning / absorption:
Take up dry. Forward for disposal. Clean up affected area. Avoid generation of dusts.

7. Handling and storage

Handling:

Notes for safe handling:
Work under hood. Do not inhale substance.

Storage:

Tightly closed. Dry. At +15°C to +25°C.

The data apply to the entire pack.

8. Exposure controls/personal protection

Specific control parameter

EC

Name	Potassium peroxodisulphate
Sensitization	Sah Danger of sensitization of the airways and the skin

Personal protective equipment:

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.

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Respiratory protection: required when dusts are generated.

Eye protection: required

Hand protection: In full contact:
Glove material: nitrile rubber
Layer thickness: 0.11 mm
Breakthrough time: > 480 Min.
In splash contact:
Glove material: nitrile rubber
Layer thickness: 0.11 mm
Breakthrough time: > 480 Min.

The protective gloves to be used must comply with the specifications of EC directive 89/686/EEC and the resultant standard EN374, for example KCL 740 Dermatril® (full contact), 740 Dermatril® (splash contact).

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. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Industrial hygiene:

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

9. Physical and chemical properties

Form:	solid
Colour:	white
Odour:	odourless
pH value	not available
Melting point	not available
Boiling point	not available
Ignition temperature	not available
Flash point	not available
Explosion limits	lower not available upper not available
Density	not available
Bulk density	750-800 kg/m ³
Solubility in water	(25 °C) soluble
Thermal decomposition	> 100 °C

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10. Stability and reactivity

Conditions to be avoided

warmth/heat

Substances to be avoided

water, bases, strong alkalis, acids, metals, heavy metals, silver compounds, reducing agents, combustible substances.

Hazardous decomposition products

in the event of fire: See chapter 5.

Further information

fire-promoting substance;
strong oxidizing agent.

11. Toxicological information

Acute toxicity

Quantitative data on the toxicity of this product are not available.

Further toxicological information

Properties to be expected on the basis of the main component of the preparation:

After inhalation of dust: mucosal irritations, coughing, dyspnoea. Possible damages: pulmonary oedema. Risk of airways sensitization.

After skin contact: Irritations. Risk of skin sensitization.

After eye contact: Irritations.

After swallowing: irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

Further data

Further hazardous properties cannot be excluded.

The product should be handled with the care usual when dealing with chemicals.

12. Ecological information

Ecotoxic effects:

Quantitative data on the ecological effect of this product are not available.

Biological effects:

Reacts with water to form toxic decomposition products.

Further ecologic data:

Do not allow to enter waters, waste water, or soil!

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13. Disposal considerations

Product:

Chemicals must be disposed of in compliance with the respective national regulations. Under www.retrologistik.de you will find country- and substance-specific information as well as contact partners.

Packaging:

Merck product packaging must be disposed of in compliance with the country-specific regulations or must be passed to a packaging return system. Under www.retrologistik.de you will find special information on the respective national conditions as well as contact partners.

14. Transport information

Road & Rail ADR, RID
UN 3316 CHEMIE-TESTSATZ, 9, II

Inland waterway ADN, ADNR not tested

Sea IMDG-Code
UN 3316 CHEMICAL KIT, 9, II
Ems F-A S-P

Air CAO, PAX
CHEMICAL KIT, 9, UN 3316, II

The transport regulations are cited according to international regulations and in the form applicable in Germany. Possible national deviations in other countries are not considered.
THESE TRANSPORT DATA APPLY TO THE ENTIRE PACK !

15. Regulatory information

Labelling according to EC Directives

Symbol:	O Xn	Oxidizing Harmful
R-phrases:	22-42/43	Harmful if swallowed. May cause sensitization by inhalation and skin contact.
S-phrases:	22-24-37-45	Do not breathe dust. Avoid contact with skin. Wear suitable gloves. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
contains:	Potassium persulfate Potassium carbonate	

German regulations

Water pollution class	1 (slightly polluting substance) VwVwS Anh. 4
Storage class VCI	5.1 B
Data sheet of the Chemical Professional Association	M004 Irritant substances/corrosive substances M050 Dealing with harmful substances

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Local regulations on chemical accidents: 3

The employment restrictions for young workers in accordance with section 22 of the Youth Employment Protection Law (JArbSchG) are to be observed.

The employment restrictions for expectant and nursing mothers in accordance with sections 4 and 5 of the Maternity Protection Guideline (MuSchRiV) are to be observed.

16. Other information

Text of any R phrases referred to under heading 2:

8 Contact with combustible material may cause fire.
22 Harmful if swallowed.
36/37/38 Irritating to eyes, respiratory system and skin.
42/43 May cause sensitization by inhalation and skin contact.

Reduced labelling on the container due to small quantity.

Reason for alteration

Chapter 1: change in product name.
Chapter 2: change in composition data.
Chapter 7: handling.
Chapter 14: transport information.

General update.

Contact for information:

HSSE-C/CI * Tel: +49 (0)6151/722775 * Fax: +49 (0)6151/726433 * e-mail: prodsafe@merck.de

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

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1. Identification of the substance/preparation and of the company/undertaking

Identification of the product

Catalogue No.: 114963
Product name: Crack Set 20 for the digestion of nitrogen (total)
90 digestions Spectroquant®
R-2

Use of the substance/preparation

Reagent for analysis

Company/undertaking identification

Company: Merck KGaA * 64271 Darmstadt * Germany * Tel: +49 (0)6151/72-0
Emergency telephone No.: +49 (0)6151/72112 * Fax: +49 (0)6151/72-7780

2. Composition/information on ingredients

Aqueous alkaline solution.

Hazardous ingredients:

Name according to EC Directives:

CAS-No.	EC No.	EC-Index-No.	Classification	Content:
Sodium hydroxide 1310-73-2	215-185-5	011-002-00-6	C; R35	≥ 25 - < 50 %

(Full text of R-Phrases in heading 16)

3. Hazards identification

Causes severe burns.

4. First aid measures

After inhalation: fresh air. Call in physician.
After skin contact: wash off with plenty of water. Dab with polyethylene glycol 400.
Immediately remove contaminated clothing.
After eye contact: rinse out with plenty of water for at least 10 minutes with the eyelid held wide open. Immediately call in ophthalmologist.
After swallowing: make victim drink plenty of water (if necessary several litres), avoid vomiting (risk of perforation!). Immediately call in physician. Do not attempt to neutralize.

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R-2

5. Fire-fighting measures

Suitable extinguishing media:
In adaption to materials stored in the immediate neighbourhood.

Special risks:
Non-combustible. Ambient fire may liberate hazardous vapours.

Special protective equipment for fire fighting:
Do not stay in dangerous zone without self-contained breathing apparatus. In order to avoid contact with skin, keep a safety distance and wear suitable protective clothing.

Other information:
Prevent fire-fighting water from entering surface water or groundwater.

6. Accidental release measures

Person-related precautionary measures:
Do not inhale vapours/aerosols. Avoid substance contact. Ensure supply of fresh air in enclosed rooms.

Environmental-protection measures:
Do not allow to enter sewerage system.

Procedures for cleaning / absorption:
Take up with liquid-absorbent and neutralizing material (e.g. Chemizorb® OH⁻, Art. No. 101596). Forward for disposal. Clean up affected area.

7. Handling and storage

Handling:

No further requirements.

Storage:

Tightly closed. At +15°C to +25°C.

Requirements for storage rooms and containers:
No aluminium, tin, or zinc containers.

The data apply to the entire pack.

8. Exposure controls/personal protection

Specific control parameter

TRGS 900

Name	Sodium hydroxide
Value	2 mg/m ³ inhalable fraction
Peak limit	=1= Concentration must not exceed limit concentration.
Embryotoxic	Y Substances with which no foetotoxic risk is to be expected when observing the maximum allowable concentration (MAC Germany) and the biological tolerance value at the workplace (BAT Germany).

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Personal protective equipment:

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.

Respiratory protection: required when vapours/aerosols are generated.

Eye protection: required

Hand protection: In full contact:
Glove material: nitrile rubber
Layer thickness: 0.11 mm
Breakthrough time: > 480 Min.

In splash contact:
Glove material: nitrile rubber
Layer thickness: 0.11 mm
Breakthrough time: > 480 Min.

The protective gloves to be used must comply with the specifications of EC directive 89/686/EEC and the resultant standard EN374, for example KCL 740 Dermatril® (full contact), 740 Dermatril® (splash contact). The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

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Other protective equipment: Suitable protective clothing.

Industrial hygiene:

Immediately change contaminated clothing. Apply skin-protective barrier cream. Wash hands and face after working with substance.

9. Physical and chemical properties

Form:	liquid
Colour:	colourless
Odour:	odourless
pH value	(20 °C) > 14
Viscosity dynamic	(20 °C) 19 mPa*s
Melting point	9 °C
Boiling point	not available
Ignition temperature	not applicable
Flash point	not applicable
Explosion limits	lower not applicable upper not applicable
Vapour pressure	(20 °C) ~ 8 hPa
Density	(20 °C) 1.35 g/cm ³

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Solubility in water (20 °C) soluble

10. Stability and reactivity

Conditions to be avoided

no information available

Substances to be avoided

metals, light metals: Formed could be: hydrogen (risk of explosion!).
ammonium compounds: Formed could be: ammonia.
acids.

Hazardous decomposition products

no information available

11. Toxicological information

Acute toxicity

Quantitative data on the toxicity of this product are not available.

Further toxicological information

Property that must be anticipated on the basis from the components of the preparation:

After inhalation: burns of mucous membranes.

After skin contact: burns, necrosis.

After eye contact: burns, necrosis, Risk of blindness!

After swallowing: burns in mouth, throat, oesophagus and gastrointestinal tract. Risk of perforation in the oesophagus and stomach.

Systemic effects: collapse, death.

Further data

The product should be handled with the care usual when dealing with chemicals.

12. Ecological information

Ecotoxic effects:

Biological effects:

Toxic effect on fish and plankton. Harmful effect due to pH shift. Does not cause biological oxygen deficit. Neutralization possible in waste water treatment plants.

Fish toxicity:

Onchorhynchus mykiss LC₅₀: 45.4 mg/l /96 h (anhydrous substance).

L.macrochirus LC₅₀: 99 mg/l /48 h (anhydrous substance).

Daphnia toxicity:

Daphnia magna EC₅₀: 76 mg/l /24 h (anhydrous substance).

Further ecologic data:

Do not allow to enter waters, waste water, or soil!

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14. Transport information

Road & Rail ADR, RID
UN 3316 CHEMIE-TESTSATZ, 9, II

Inland waterway ADN, ADNR not tested

Sea IMDG-Code
UN 3316 CHEMICAL KIT, 9, II
Ems F-A S-P

Air CAO, PAX
CHEMICAL KIT, 9, UN 3316, II

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15. Regulatory information

Labelling according to EC Directives

Symbol:	C	Corrosive
R-phrases:	35	Causes severe burns.
S-phrases:	26-36/37/39-45	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

contains: Sodium hydroxide

German regulations

Water pollution class 1 (slightly polluting substance) VwVwS Anh. 4

Storage class VCI 8 B

Data sheet of the Chemical Professional Association M004 Irritant substances/corrosive substances

M051 Dangerous chemical substances

M053 General industrial safety measures for dangerous substances.

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R-2

The employment restrictions for young workers in accordance with section 22 of the Youth Employment Protection Law (JArbSchG) are to be observed.

16. Other information

Text of any R phrases referred to under heading 2:

35 Causes severe burns.

Reason for alteration

Chapter 1: change in product name.
Chapter 2: change in composition data.
Chapter 14: transport information.

General update.

Contact for information:

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