

# Safety Data Sheet

According to EC Directive 91/155/EEC

Date of issue: 08.04.2004  
Supersedes edition of 10.02.2000

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

### *Identification of the product*

Catalogue No.: 114552  
Product name: Chromate Cell Test Method: photometric 0.05 - 2.00 mg/l Cr 25  
Tests  
0.11 - 4.46 mg/l CrO<sub>4</sub> Spectroquant®  
Blindküvette

### *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

CAS-No.: 7732-18-5  
*M*: 18.02 g/mol  
Formula Hill: H<sub>2</sub>O  
EC-No.: 231-791-2

## 3. Hazards identification

No hazardous product as specified in Directive 67/548/EEC.

## 4. First aid measures

No special precautionary measures necessary.

## 5. Fire-fighting measures

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

Special risks:  
none

## 6. Accidental release measures

Procedures for cleaning / absorption:  
Pour into drain.

# Merck Safety Data Sheet

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Blindküvette

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## 7. Handling and storage

### *Handling:*

No further requirements.

### *Storage:*

Tightly closed. Away from combustible materials and sources of ignition and heat. At +15°C to +25°C.

The data apply to the entire pack.

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## 8. Exposure controls/personal protection

### *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: not required

Eye protection: not required

Hand protection: not required

Industrial hygiene:  
not required

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## 9. Physical and chemical properties

Form:	liquid		
Colour:	colourless		
Odour:	odourless		
pH value	(20 °C)	neutral	
Viscosity dynamic	(20 °C)	0.952	mPa*s
Melting point		0	°C
Boiling point		100	°C
Ignition temperature		not applicable	
Flash point		not applicable	
Explosion limits	lower	not applicable	
	upper	not applicable	
Vapour pressure	(20 °C)	23	hPa
Density	(20 °C)	1.00	g/cm <sup>3</sup>
Solubility in ethanol	(20 °C)	soluble	

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## 10. Stability and reactivity

*Conditions to be avoided*

none

*Substances to be avoided*

The generally known reaction partners of water.

*Hazardous decomposition products*

none

*Further information*

none

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## 11. Toxicological information

*Acute toxicity*

No toxic effects are to be expected when the product is handled appropriately.

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## 12. Ecological information

not required

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## 13. Disposal considerations

*Product:*

Chemicals must be disposed of in compliance with the respective national regulations. Under [www.retrologistik.de](http://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](http://www.retrologistik.de) you will find special information on the respective national conditions as well as contact partners.

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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

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 !**

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According to EC Directive 91/155/EEC

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Product name: Chromate Cell Test Method: photometric 0.05 - 2.00 mg/l Cr 25 Tests  
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Blindküvette

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## 15. Regulatory information

*Labelling according to EC Directives*

Symbol: ---

R-phrases: ---

S-phrases: ---

*German regulations*

Storage class VCI 10-13

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## 16. Other information

*Reason for alteration*

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

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*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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Reaktionsküvette

### *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 organic compounds.

## 3. Hazards identification

No hazardous product as specified in Directive 67/548/EEC.

## 4. First aid measures

After inhalation: fresh air.  
After skin contact: wash off with plenty of water.  
After eye contact: rinse out with plenty of water with the eyelid held wide open.  
After swallowing: make victim drink plenty of water. Consult doctor if feeling unwell.

## 5. Fire-fighting measures

Suitable extinguishing media:  
Water, foam, powder.

Special risks:  
Combustible. Development of hazardous combustion gases or vapours possible in the event of fire.  
The following may develop in event of fire: nitrous gases.

Special protective equipment for fire fighting:  
Do not stay in dangerous zone without self-contained breathing apparatus.

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

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Reaktionsküvette

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## 6. Accidental release measures

Person-related precautionary measures:  
Avoid generation of dusts; do not inhale dusts.

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

Procedures for cleaning / absorption:  
Take up dry. Forward for disposal. Clean up affected area.

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## 7. Handling and storage

*Handling:*

No further requirements.

*Storage:*

Tightly closed. Away from combustible materials and sources of ignition and heat. At +15°C to +25°C.

Dry. Protected from light.

The data apply to the entire pack.

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## 8. Exposure controls/personal protection

*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 dusts are generated.

Eye protection: required

Hand protection: not required

Industrial hygiene:  
Change contaminated clothing. Wash hands after working with substance.

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## 9. Physical and chemical properties

Form: solid

Colour: pink

Odour: odourless

pH value  
at 10 g/l H<sub>2</sub>O (20 °C) ~ 7

Melting point not available

Boiling point not available

Ignition temperature not available

Flash point not available

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0.11 - 4.46 mg/l CrO<sub>4</sub> Spectroquant®  
Reaktionsküvette

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Explosion limits	lower	not available
	upper	not available
Density		not available
Bulk density		~ 400-500 kg/m <sup>3</sup>
Solubility in water	(20 °C)	soluble

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## 10. Stability and reactivity

*Conditions to be avoided*

Heating.

*Substances to be avoided*

halogenates, permanganates, nitrates, strong oxidizing agents.

*Hazardous decomposition products*

in the event of fire: See chapter 5.

*Further information*

partial component: light-sensitive; hygroscopic.

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## 11. Toxicological information

*Acute toxicity*

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

*Further toxicological information*

Hazardous properties cannot be excluded but are unlikely when the product is handled appropriately.

*Further data*

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

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## 12. Ecological information

Ecotoxic effects:

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

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](http://www.retrologistik.de) you will find country- and substance-specific information as well as contact partners.

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# Merck Safety Data Sheet

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0.11 - 4.46 mg/l CrO<sub>4</sub> Spectroquant®  
Reaktionsküvette

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## *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](http://www.retrologistik.de) you will find special information on the respective national conditions as well as contact partners.

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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

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 !**

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## 15. Regulatory information

### *Labelling according to EC Directives*

Symbol: ---  
R-phrases: ---  
S-phrases: ---

### *German regulations*

Water pollution class 2 (polluting substance) VwVwS Anh. 4  
Storage class VCI 10-13

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## 16. Other information

### *Reason for alteration*

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](mailto:prodsafe@merck.de)

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Cr-1K

### 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 solution.

### Hazardous ingredients:

Name according to EC Directives:

CAS-No.	EC No.	EC-Index-No.	Classification	Content:
Sulphuric acid 7664-93-9	231-639-5	016-020-00-8	C; R35	≥ 15 - < 25 %

(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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Cr-1K

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## 5. Fire-fighting measures

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

Special risks:  
Non-combustible. Development of hazardous combustion gases or vapours possible in the event of fire.  
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.

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## 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® H<sup>+</sup>, Art. No. 101595). Forward for disposal. Clean up affected area.

---

## 7. Handling and storage

*Handling:*

No further requirements.

*Storage:*

Tightly closed. Away from combustible materials and sources of ignition and heat. At +15°C to +25°C.

The data apply to the entire pack.

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## 8. Exposure controls/personal protection

*Specific control parameter*

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Cr-1K

---

## TRGS 900

Name	Sulfuric acid
Kind of use	others
Value	0.1 mg/m <sup>3</sup> Inhalable fraction. The following regulation applies to the peak limit: short-term exposure duration: max. 15 minutes as mean value, frequency per shift: 4, time interval: min. 1 hour
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).

### *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.

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](http://www.kcl.de)).

Industrial hygiene:

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

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## 9. Physical and chemical properties

Form:	liquid
Colour:	colourless
Odour:	odourless
pH value	(20 °C) ~ 1

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Cr-1K

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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	(20 °C)	1.18 g/cm <sup>3</sup>
Solubility in water	(20 °C)	soluble (development of heat)

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## 10. Stability and reactivity

### *Conditions to be avoided*

Strong heating.

### *Substances to be avoided*

water, alkali metals, alkali hydroxides, alkali oxides, alkali salts, ammonia, alkaline earth metals, alkaline earth compounds, alkalis, acids, metals, metal alloys, phosphorus, phosphorus oxides, hydrides, halogen-halogen compounds, oxyhalogenic compounds, permanganates, nitrates, carbides, combustible substances, organic solvents, acetylidene, nitriles, organic nitro compounds, anilines, peroxides, picrates, nitrides, lithium silicide.

### *Hazardous decomposition products*

in the event of fire: See chapter 5.

### *Further information*

hygroscopic; oxidative;  
incompatible with various metals (Formed could be: hydrogen).

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## 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 toxicological main component of the preparation:

After inhalation of aerosols: damage to the affected mucous membranes.

After skin contact: severe burns with formation of scabs.

After eye contact: burns, corneal lesions.

After swallowing: severe pain (risk of perforation!), nausea, vomiting and diarrhoea.

After a latency period of several weeks possibly pyloric stenosis.

### *Further data*

Further hazardous properties cannot be excluded.

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

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Cr-1K

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## 12. Ecological information

Ecotoxic effects:

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

Further ecologic data:

The following applies to sulfuric acid: biological effects: harmful effect on aquatic organisms. Harmful effect due to pH shift. Toxic effect on fish and algae. Caustic even in diluted form. Does not cause biological oxygen deficit. Endangers drinking-water supplies if allowed to enter soil and/or waters in large quantities. Neutralization possible in waste water treatment plants.

Daphnia toxicity: Daphnia magna EC<sub>50</sub>: 29 mg/l/24 h (calculated on the pure substance).

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](http://www.retrologistik.de) you will find country- and substance-specific information as well as contact partners.

*Packaging:*

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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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Cr-1K

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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: Sulphuric acid

### *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.

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

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## 16. Other information

Text of any R phrases referred to under heading 2:

35 Causes severe burns.

### *Reason for alteration*

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

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### Use of the substance/preparation

Reagent for analysis

### Company/undertaking identification

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Emergency telephone No.: +49 (0)6151/72112 \* Fax: +49 (0)6151/72-7780

## 2. Composition/information on ingredients

Substance mixture.

### 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	≥ 25 - < 50 %
Sodium nitrate 7631-99-4	231-554-3		O; R8 Xn; R22 Xi; R36	≥ 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 in the event of any complaints.  
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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Cr-2K

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## 5. Fire-fighting measures

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

Special risks:  
Fire-promoting. Keep away from combustible materials. Development of hazardous combustion gases or vapours possible in the event of fire. The following may develop in event of fire: nitrous gases.

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.

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## 6. Accidental release measures

Person-related precautionary measures:  
Avoid generation of dusts; do not inhale dusts. Avoid substance contact.

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

Procedures for cleaning / absorption:  
Take up dry. Forward for disposal. Clean up affected area.

---

## 7. Handling and storage

*Handling:*

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

*Storage:*

Tightly closed. Away from combustible materials and sources of ignition and heat. Dry. At +15°C to +25°C.

The data apply to the entire pack.

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## 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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Cr-2K

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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](http://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:	colourless
Odour:	odourless
pH value at 50 g/l H <sub>2</sub> O	(20 °C) ~ 5.0-5.5
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	~ 1100 kg/m <sup>3</sup>
Solubility in water	(20 °C) soluble
Thermal decomposition	> 100 °C
Mean particle size	0.35 mm

# Merck Safety Data Sheet

According to EC Directive 91/155/EEC

Catalogue No.: 114552  
Product name: Chromate Cell Test Method: photometric 0.05 - 2.00 mg/l Cr 25 Tests  
0.11 - 4.46 mg/l CrO<sub>4</sub> Spectroquant®  
Cr-2K

---

## 10. Stability and reactivity

### *Conditions to be avoided*

Heating (decomposition).

### *Substances to be avoided*

water, bases, strong alkalis, acids, metals, heavy metals, silver compounds, reducing agents, metals in powder form, cyanides (heat), carbon, oxidizable substances, performic acid, sulfur, alkali metals, acetic acid anhydride, polyvinyl chloride, sodium phosphite, sodium thiosulfate, aluminium oxide, boron phosphide.

### *Hazardous decomposition products*

in the event of fire: See chapter 5.

### *Further information*

fire-promoting substance.

---

## 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: Irritations of the mucous membranes, coughing, and dyspnoea. Possible damages: pulmonary oedema. Risk of airways sensitization.

After skin contact: Irritations. Risk of skin sensitization.

After eye contact: Irritations.

After swallowing: mucosal irritations, nausea, diarrhoea, vomiting.

After absorption of large quantities: Methaemoglobinaemia with headache, cardiac arrhythmia, drop in blood pressure, dyspnoea, and spasms, key symptom: cyanosis (blue colouration of the blood).

### *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.

Further ecologic data:

The following applies to nitrates in general: may contribute to the eutrophication of water supplies.

Hazard for drinking water. Fish: LC<sub>50</sub> > 500 mg/l.

The following applies to sulfate in general: biological effects: fish: toxic as from 7 g/l ; bacteria: toxic as from 2.5 g/l .

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

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# Merck Safety Data Sheet

According to EC Directive 91/155/EEC

Catalogue No.: 114552  
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Cr-2K

---

## 13. Disposal considerations

### *Product:*

Chemicals must be disposed of in compliance with the respective national regulations. Under [www.retrologistik.de](http://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](http://www.retrologistik.de) you will find special information on the respective national conditions as well as contact partners.

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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

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 !**

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## 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 Sodium nitrate	

### *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 M050 Dealing with harmful substances

M004 Irritant substances/corrosive substances

M053 General industrial safety measures for dangerous substances.

# Merck Safety Data Sheet

According to EC Directive 91/155/EEC

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Cr-2K

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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 Irritating to eyes.  
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 11: toxicological information.  
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

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*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.*

# Safety Data Sheet

According to EC Directive 91/155/EEC

Date of issue: 08.04.2004  
Supersedes edition of 10.02.2000

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

### Identification of the product

Catalogue No.: 114552  
Product name: Chromate Cell Test Method: photometric 0.05 - 2.00 mg/l Cr 25  
Tests  
0.11 - 4.46 mg/l CrO<sub>4</sub> Spectroquant®  
Cr-3K

### 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

Solution in DMSO.

### Hazardous ingredients:

Name according to EC Directives:

CAS-No.	EC No.	EC-Index-No.	Classification	Content:
Phosphoric acid				
7664-38-2	231-633-2	015-011-00-6	C; R34	≥ 1 - < 5 %

(Full text of R-Phrases in heading 16)

## 3. Hazards identification

No hazardous product as specified in Directive 67/548/EEC.

## 4. First aid measures

After inhalation: fresh air.

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: make victim drink plenty of water. Subsequently administer: activated charcoal (20 - 40 g in 10% slurry). Laxative: Sodium sulfate (1 tablespoon/1/4 l water). Call in physician.

# Merck Safety Data Sheet

According to EC Directive 91/155/EEC

Catalogue No.: 114552  
Product name: Chromate Cell Test Method: photometric 0.05 - 2.00 mg/l Cr 25 Tests  
0.11 - 4.46 mg/l CrO<sub>4</sub> Spectroquant®  
Cr-3K

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## 5. Fire-fighting measures

Suitable extinguishing media:  
Water, foam, powder.

Special risks:  
Preparation with combustible ingredients. Vapours heavier than air. Development of hazardous combustion gases or vapours possible in the event of fire. 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 substance contact. Do not inhale vapours/aerosols. 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. Chemisorb® H<sup>+</sup>, Art. No. 101595). Forward for disposal. Clean up affected area.

---

## 7. Handling and storage

*Handling:*

No further requirements.

*Storage:*

Tightly closed. Away from combustible materials and sources of ignition and heat. At +15°C to +25°C.

The data apply to the entire pack.

---

## 8. Exposure controls/personal protection

*Specific control parameter*

EC

Name	ortho-Phosphoric acid
Value	1 mg/m <sup>3</sup>

# Merck Safety Data Sheet

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Cr-3K

## TRGS 900

Name Dimethyl sulfoxide  
Value 160 mg/m<sup>3</sup>  
Skin resorption Risk of skin absorption

### 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. Filter A (acc. to DIN 3181) for vapours of organic compounds.

Eye protection: required

Hand protection: In full contact:  
Glove material: polychloroprene  
Layer thickness: 0.65 mm  
Breakthrough time: > 480 Min.  
In splash contact:  
Glove material: natural latex  
Layer thickness: 0.6 mm  
Breakthrough time: > 240 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 720 Camapren® (full contact), 706 Lapren® (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:	liquid
Colour:	colourless
Odour:	weak
pH value	(20 °C) ~ 3-4
Melting point	not available
Boiling point	not available
Ignition temperature	300-302 °C (Dimethylsulfoxide)
Flash point	95 °C o.c. (Dimethylsulfoxide)
Explosion limits	lower 1.8 Vol% (Dimethylsulfoxide)
	upper 63.0 Vol% (Dimethylsulfoxide)
Vapour pressure	(20 °C) 0.6 hPa (Dimethylsulfoxide)
Density	(20 °C) ~ 1.08 g/cm <sup>3</sup>

# Merck Safety Data Sheet

According to EC Directive 91/155/EEC

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Product name: Chromate Cell Test Method: photometric 0.05 - 2.00 mg/l Cr 25 Tests  
0.11 - 4.46 mg/l CrO<sub>4</sub> Spectroquant®  
Cr-3K

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Solubility in water (20 °C) soluble  
log Pow: -1.35 (experimental)  
(Dimethylsulfoxide)

---

## 10. Stability and reactivity

### *Conditions to be avoided*

Strong heating.

### *Substances to be avoided*

alkali metals, hydrides, nitrates, halogen-halogen compounds, perchloric acid, perchlorates, chlorates, nonmetallic oxyhalides, oxyhalogenic compounds, acid halides, nitrogen oxides, sulfur oxides, strong oxidizing agents.

### *Hazardous decomposition products*

in the event of fire: See chapter 5.

### *Further information*

inflammable;  
incompatible with various plastics, metals.  
Explosible with air in a vaporous/gaseous state when heated.

---

## 11. Toxicological information

### *Acute toxicity*

Applicable to the main component:

LD<sub>50</sub> (dermal, rat): 40000 mg/kg.  
LD<sub>50</sub> (oral, rat): 14500 mg/kg.

Specific symptoms in animal studies:

Eye irritation test (rabbit): Slight irritations.  
Skin irritation test (rabbit): Slight irritations.

### *Subacute to chronic toxicity*

Applicable to the main component:

Sensitization:  
Sensitization test (guinea pig): negative.

No indication of carcinogenic activity.  
No indication of mutagenic activity.  
Bacterial mutagenicity: Ames test: negative.  
No teratogenic effect in animal experiments.

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# Merck Safety Data Sheet

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Cr-3K

---

## *Further toxicological information*

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

After skin contact: Slight irritations. Danger of skin absorption.  
After eye contact: Slight irritations.  
Possible symptoms: After uptake: CNS disorders, nausea, tiredness, headache.  
Possible damages: Damage of: liver, kidneys.

## *Further data*

Further hazardous properties cannot be excluded.  
The product should be handled with the care usual when dealing with chemicals.

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## 12. Ecological information

Applicable to the main component:

Abiotic degradation:  
Rapid degradation. (air)

Biologic degradation:  
Biodegradation: 3.1 % /14 d.  
Biologically not readily degradable.

Behavior in environmental compartments:  
Distribution: log p(o/w): -1.35 (experimental).  
No bioaccumulation is to be expected (log P(o/w) <1).

Ecotoxic effects:  
Biological effects:  
Fish toxicity: *L. macrochirus* LC<sub>50</sub>: 33500 mg/l /48 h.  
Bacterial toxicity: activated sludge EC<sub>50</sub>: 10-100 mg/l /30 min.

Further ecologic data:  
Do not allow to enter waters, waste water, or soil!

---

## 13. Disposal considerations

### *Product:*

Chemicals must be disposed of in compliance with the respective national regulations. Under [www.retrologistik.de](http://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](http://www.retrologistik.de) you will find special information on the respective national conditions as well as contact partners.

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Cr-3K

---

## 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 !**

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## 15. Regulatory information

*Labelling according to EC Directives*

Symbol: ---

R-phrases: ---

S-phrases: ---

*German regulations*

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

Storage class VCI 10-13

---

## 16. Other information

Text of any R phrases referred to under heading 2:

34 Causes burns.

*Reason for alteration*

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

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*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.*