

Safety Data Sheet

According to EC Directive 91/155/EEC

Date of issue:
Supersedes edition of

15.02.2007
09.05.2004

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

Identification of the product

Catalogue No.: 114729
Product name: Phosphate Cell Test
Method: photometric, PMB
0.5 - 25.0 mg/l $\text{PO}_4\text{-P}$
1.5 - 76.7 mg/l PO_4^{3-}
1.1 - 57.3 mg/l P_2O_5
Spectroquant®
Reaktionsküvette

Use of the substance/preparation

Reagent for analysis

Company/undertaking identification

Company: Merck KGaA * 64271 Darmstadt * Germany * Phone: +49 6151 72-0
Emergency telephone No.: Please contact the regional Merck representation in your country.

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	≥ 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 if necessary.
After swallowing: immediately make victim drink plenty of water. Consult doctor if feeling unwell.

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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. 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.

Other information:
Contain escaping vapours with water.

6. Accidental release measures

Person-related precautionary measures:
Avoid substance contact. Do not inhale vapours/aerosols.

Procedures for cleaning / absorption:
Take up with liquid-absorbent and neutralizing material (e.g. Chemisorb® H^+ , Merck 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

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

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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 741 Dermatril® L (full contact), 741 Dermatril® L (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).

Industrial hygiene:

Change contaminated clothing. Application of skin- protective barrier cream recommended. Wash hands after working with substance.

9. Physical and chemical properties

Form:	liquid
Colour:	colourless
Odour:	odourless
pH value	(20 °C) < 1
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) ~ 1.01 g/cm ³
Solubility in water	(20 °C) soluble

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1.1 - 57.3 mg/l P_2O_5
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10. Stability and reactivity

Conditions to be avoided

Strong heating.

Substances to be avoided

Violent reactions possible with: alkali metals, alkali compounds, ammonia, alkaline earth metals, alkaline earth compounds, alkalis, acids, metals, metal alloys, combustible substances, organic solvents, halogenates, permanganates.

Hazardous decomposition products

in the event of fire: See chapter 5.

Further information

has a corrosive effect;
incompatible with metals, animal/vegetable tissues.

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 skin contact: irritative response if not handled appropriately.

After eye contact: corneal lesions may occur under certain circumstances.

After swallowing: damage to the affected mucous membranes possible.

Further data

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 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 EC₅₀: 29 mg/l/24 h (calculated on the pure substance).

No ecological problems are to be expected when the product is handled and used with due care and attention.

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1.5 - 76.7 mg/l PO₄³⁻
1.1 - 57.3 mg/l P₂O₅
Spectroquant®
Reaktionsküvette

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

UN 3316 CHEMICAL KIT, 9, 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: ---

R-phrases: ---

S-phrases: ---

16. Other information

Text of any R phrases referred to under heading 2:

35 Causes severe burns.

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1.1 - 57.3 mg/l P_2O_5
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Reaktionsküvette

Reason for alteration

Chapter 4: first aid measures.

General update.

Regional representation:

This information is given on the authorised Safety Data Sheet for your country.

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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P-1K

Use of the substance/preparation

Reagent for analysis

Company/undertaking identification

Company: Merck KGaA * 64271 Darmstadt * Germany * Phone: +49 6151 72-0
Emergency telephone No.: Please contact the regional Merck representation in your country.

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 Xi; R36/37/38 R42/43	≥ 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.

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1.1 - 57.3 mg/l P_2O_5
Spectroquant®
P-1K

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.

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, nitrogen oxides, 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 generation of dusts; do not inhale 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.

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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1.1 - 57.3 mg/l P_2O_5
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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.

Respiratory protection: required when dusts are generated. Filter P 2 (acc. to DIN 3181) for solid and liquid particles of harmful substances

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 741 Dermatrill® L (full contact), 741 Dermatrill® L (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).

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:	solid
Colour:	colourless
Odour:	odourless
pH value at 50 g/l H_2O	(20 °C) ~ 5.0-5.5

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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		not available
Bulk density		~ 1100 kg/m ³
Solubility in water	(20 °C)	soluble
Thermal decomposition		> 100 °C
Mean particle size		0.35 mm

10. Stability and reactivity

Conditions to be avoided
no information available

Substances to be avoided

the constituents may react with: water, bases, strong alkalis, acids, heavy metals, silver compounds, reducing agents, combustible substances, 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.

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.

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P-1K

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: $\text{LC}_{50} > 500$ 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!

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

UN 3316 CHEMICAL KIT, 9, 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.

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Spectroquant®
P-1K

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	

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 8: personal protective equipment.
Chapter 5: fire-fighting measures.

General update.

Regional representation:

This information is given on the authorised Safety Data Sheet for your country.

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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Spectroquant®
P-2K

Use of the substance/preparation

Reagent for analysis

Company/undertaking identification

Company: Merck KGaA * 64271 Darmstadt * Germany * Phone: +49 6151 72-0
Emergency telephone No.: Please contact the regional Merck representation in your country.

2. Composition/information on ingredients

Aqueous sulfuric acid solution of inorganic compounds.

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	≥ 10 - < 15 %
Potassium antimony(III) oxide tartrate				
11071-15-1	234-293-3	051-003-00-9	Xn; R20/22 N; R51/53	≥ 0.1 - < 0.25 %

(Full text of R-Phrases in heading 16)

3. Hazards identification

Irritating to eyes and skin.

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: immediately make victim drink plenty of water. Call in physician.

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1.1 - 57.3 mg/l P_2O_5
Spectroquant®
P-2K

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. 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^+ , Merck 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

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 vapours/aerosols are generated.

Eye protection: required

Hand protection: In full contact:
Glove material: natural latex
Layer thickness: 0.6 mm
Breakthrough time: > 480 Min.

In splash contact:
Glove material: natural latex
Layer thickness: 0.6 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 706 Lapren® (full contact), 706 Lapren® (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).

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) < 1
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) 1.12 g/cm ³
Solubility in water	(20 °C) soluble

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10. Stability and reactivity

Conditions to be avoided

Strong heating.

Substances to be avoided

Violent reactions possible with: water, alkali metals, alkali compounds, ammonia, alkalis, acids, metals, alkaline earth metals, alkaline earth compounds, metal alloys.

Hazardous decomposition products

in the event of fire: See chapter 5.

Further information

has a corrosive effect;
incompatible with metals, animal/vegetable tissues.
Hydrogen may form upon contact with metals (danger of explosion!).

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 of vapours: irritative symptoms in the respiratory tract.

After skin contact: severe irritations.

After eye contact: corneal destruction.

After swallowing: damage of the oral, oesophageal, and gastric mucous membranes. Perforation of the oesophagus frequently occurs. Circulatory collapse may occur after 1-2 hours.

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

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_{50} : 29 mg/l/24 h (calculated on the pure substance).

The following applies to antimony compounds in general: toxic for aquatic organisms. LC_{50} : 10 mg/l in 96 h.; fish: P. promelas LD_{01} 80 mg/l (as Sb_2O_3); bioaccumulation.

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 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

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Ems F-A S-P

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Method: photometric, PMB
0.5 - 25.0 mg/l PO_4^{3-}P
1.5 - 76.7 mg/l PO_4^{3-}
1.1 - 57.3 mg/l P_2O_5
Spectroquant®
P-2K

15. Regulatory information

Labelling according to EC Directives

Symbol: Xi Irritant
R-phrases: ---
S-phrases: ---

16. Other information

Text of any R phrases referred to under heading 2:

20/22 Harmful by inhalation and if swallowed.
35 Causes severe burns.
51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Reduced labelling on the container due to small quantity.

Reason for alteration

Chapter 2: change in ingredients data.
Chapter 4: first aid measures.
Chapter 10: stability and reactivity.

General update.

Regional representation:

This information is given on the authorised Safety Data Sheet for your country.

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:
Supersedes edition of

15.02.2007
09.05.2004

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

Identification of the product

Catalogue No.: 114729
Product name: Phosphate Cell Test
Method: photometric, PMB
0.5 - 25.0 mg/l $\text{PO}_4\text{-P}$
1.5 - 76.7 mg/l PO_4^{3-}
1.1 - 57.3 mg/l P_2O_5
Spectroquant®
P-3K

Use of the substance/preparation

Reagent for analysis

Company/undertaking identification

Company: Merck KGaA * 64271 Darmstadt * Germany * Phone: +49 6151 72-0
Emergency telephone No.: Please contact the regional Merck representation
in your country.

2. Composition/information on ingredients

CAS-No.:	50-81-7		
M:	176.13 g/mol	EC-No.:	200-066-2
Formula Hill:	$\text{C}_6\text{H}_8\text{O}_6$		

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 if necessary.
After swallowing: make victim drink plenty of water. Consult doctor if feeling unwell.

Merck Safety Data Sheet

According to EC Directive 91/155/EEC

Catalogue No.: 114729
Product name: Phosphate Cell Test
Method: photometric, PMB
0.5 - 25.0 mg/l PO_4^{3-}P
1.5 - 76.7 mg/l PO_4^{3-}
1.1 - 57.3 mg/l P_2O_5
Spectroquant®
P-3K

5. Fire-fighting measures

Suitable extinguishing media:
Water, CO_2 , foam, powder.

Special risks:
Combustible. Danger of dust explosion. Development of hazardous combustion gases or vapours possible in the event of fire.

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

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

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.

7. Handling and storage

Handling:

Protect from light.

Storage:

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

Protected from light.

The data apply to the entire pack.

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. Filter P 1 (acc. to DIN 3181) for solid particles of inert substances

Eye protection: required

Merck Safety Data Sheet

According to EC Directive 91/155/EEC

Catalogue No.: 114729
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1.5 - 76.7 mg/l PO_4^{3-}
1.1 - 57.3 mg/l P_2O_5
Spectroquant®
P-3K

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 741 Dermatrill® L (full contact), 741 Dermatrill® L (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).

Industrial hygiene:

Change contaminated clothing. Wash hands after working with substance.

9. Physical and chemical properties

Form:	solid
Colour:	white
Odour:	odourless
pH value at 50 g/l H_2O	(20 °C) 2.2-2.5
Melting point	190-192 °C (decomposition)
Boiling point	not applicable
Ignition temperature	380 °C
Flash point	not applicable
Explosion limits	lower not applicable upper not applicable
Vapour pressure	not applicable
Density	1.65 g/cm ³
Bulk density	~ 500-900 kg/m ³
Solubility in water	(24 °C) 330 g/l
Thermal decomposition	> 192 °C
log Pow	-2.15 (Lit.)

Merck Safety Data Sheet

According to EC Directive 91/155/EEC

Catalogue No.: 114729
Product name: Phosphate Cell Test
Method: photometric, PMB
0.5 - 25.0 mg/l PO_4^{3-}P
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1.1 - 57.3 mg/l P_2O_5
Spectroquant®
P-3K

10. Stability and reactivity

Conditions to be avoided

Strong heating (decomposition).

Substances to be avoided

Violent reactions possible with: aluminium, copper, copper alloys, zinc, metal ions, oxidizing agent.

Hazardous decomposition products

no information available

Further information

dust explosion possible;
light-sensitive; sensitive to air; sensitive to moisture.
reducing agents.

11. Toxicological information

Acute toxicity

LD₅₀ (oral, rat): 11900 mg/kg (RTECS).

Specific symptoms in animal studies:

Eye irritation test (rabbit): Slight irritations (OECD 405).

Skin irritation test (rabbit): No irritation (OECD 404).

Further toxicological information

After eye contact: Slight irritations.

Further data

Naturally occurring substance.

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

Merck Safety Data Sheet

According to EC Directive 91/155/EEC

Catalogue No.: 114729
Product name: Phosphate Cell Test
Method: photometric, PMB
0.5 - 25.0 mg/l PO_4^{3-}P
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1.1 - 57.3 mg/l P_2O_5
Spectroquant®
P-3K

12. Ecological information

Biologic degradation:
Biodegradation: 97 % /5 d (OECD 302 B).
Readily biodegradable.
When introduced properly, no impairments in the function of adapted biological waste-water-treatment plants are to be expected.

Behavior in environmental compartments:
Distribution: log Pow: -2.15 (Lit.).
No bioaccumulation is to be expected (log Pow <1).

Ecotoxic effects:
Biological effects:
Fish toxicity: *Onchorhynchus mykiss* LC_{50} : 1020 mg/l /96 h acid (OECD 203).
Daphnia toxicity: *Daphnia magna* EC_{50} : 360 mg/l /48 h (External MSDS).
Bacterial toxicity: *Ps.putida* EC_{50} : 140 mg/l /16 h (External MSDS).
Algal toxicity: *Desmodesmus subspicatus* IC_{50} : 1750 mg/l /72 h (External MSDS).

Further ecologic data:
BOD 48 % from TOD /5 d (closed bottle test) (own results);
BOD 65 % from TOD /28 d (closed bottle test) (own results).

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 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
UN 3316 CHEMICAL KIT, 9, 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 !

Merck Safety Data Sheet

According to EC Directive 91/155/EEC

Catalogue No.: 114729
Product name: Phosphate Cell Test
Method: photometric, PMB
0.5 - 25.0 mg/l PO_4^{3-}P
1.5 - 76.7 mg/l PO_4^{3-}
1.1 - 57.3 mg/l P_2O_5
Spectroquant®
P-3K

15. Regulatory information

Labelling according to EC Directives

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

16. Other information

Reason for alteration

Chapter 5: fire-fighting measures.
Chapter 8: personal protective equipment.
Chapter 10: stability and reactivity.
Chapter 12: ecological information.

General update.

Regional representation:

This information is given on the authorised Safety Data Sheet
for your country.

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: 15.02.2007
Supersedes edition of 10.05.2004

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

Identification of the product

Catalogue No.: 114729
Product name: Phosphate Cell Test
Method: photometric, PMB
0.5 - 25.0 mg/l $\text{PO}_4\text{-P}$
1.5 - 76.7 mg/l PO_4^{3-}
1.1 - 57.3 mg/l P_2O_5
Spectroquant®
Blindküvette

Use of the substance/preparation

Reagent for analysis

Company/undertaking identification

Company: Merck KGaA * 64271 Darmstadt * Germany * Phone: +49 6151 72-0
Emergency telephone No.: Please contact the regional Merck representation
in your country.

2. Composition/information on ingredients

Aqueous solution 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. Remove contaminated clothing.
After eye contact: rinse out with plenty of water with the eyelid held wide open.
After swallowing: immediately make victim drink plenty of water. Consult doctor if feeling unwell.

5. Fire-fighting measures

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

Special risks:
Non-combustible.

Merck Safety Data Sheet

According to EC Directive 91/155/EEC

Catalogue No.: 114729
Product name: Phosphate Cell Test
Method: photometric, PMB
0.5 - 25.0 mg/l PO_4^{3-}P
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1.1 - 57.3 mg/l P_2O_5
Spectroquant®
Blindküvette

6. Accidental release measures

Person-related precautionary measures:
Do not inhale vapours/aerosols. Avoid substance contact.

Procedures for cleaning / absorption:
Take up with liquid-absorbent material (e.g. Chemisorb®). 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

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 741 Dermatrill® L (full contact), 741 Dermatrill® L (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).

Merck Safety Data Sheet

According to EC Directive 91/155/EEC

Catalogue No.: 114729
Product name: Phosphate Cell Test
Method: photometric, PMB
0.5 - 25.0 mg/l PO_4^{3-}P
1.5 - 76.7 mg/l PO_4^{3-}
1.1 - 57.3 mg/l P_2O_5
Spectroquant®
Blindküvette

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

9. Physical and chemical properties

Form:	liquid	
Colour:	light greenish	
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	(20 °C)	~ 1.00 g/cm ³
Solubility in water	(20 °C)	soluble

10. Stability and reactivity

Conditions to be avoided

not known to date

Substances to be avoided

The generally known reaction partners of water.

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

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.

Merck Safety Data Sheet

According to EC Directive 91/155/EEC

Catalogue No.: 114729
Product name: Phosphate Cell Test
Method: photometric, PMB
0.5 - 25.0 mg/l PO₄³⁻-P
1.5 - 76.7 mg/l PO₄³⁻
1.1 - 57.3 mg/l P₂O₅
Spectroquant®
Blindküvette

12. Ecological information

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

Further ecologic data:
No ecological problems are to be expected when the product is handled and used with due care and attention.

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
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THESE TRANSPORT DATA APPLY TO THE ENTIRE PACK !

15. Regulatory information

Labelling according to EC Directives

Symbol: ---

R-phrases: ---

S-phrases: ---

16. Other information

Merck Safety Data Sheet

According to EC Directive 91/155/EEC

Catalogue No.: 114729
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Method: photometric, PMB
0.5 - 25.0 mg/l PO_4^{3-}P
1.5 - 76.7 mg/l PO_4^{3-}
1.1 - 57.3 mg/l P_2O_5
Spectroquant®
Blindküvette

Reason for alteration

Chapter 4: first aid measures.

General update.

Regional representation:

This information is given on the authorised Safety Data Sheet for your country.

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.