Safety Data Sheet

According to EC Directive 91/155/EEC

MERCK

Date of issue: 04.07.2001 Supersedes edition of 19.10.1999

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1.	Identification o Identification of		on and of the company/unde	rtaking						
	Catalogue No.:	100242								
	Product name:		rate cryst. extra pure Ph Eur,BP,U	SP,E 330						
	Manufacturer/si	upplier identification								
	Company: Merck KGaA * 64271 Darmstadt * Germany * Tel: +49 6151 72-0									
	Emergency teleph	one No.: Please contact in your countr	the regional Merck representatio y.	n						
2.	Composition/in	formation on ingredients								
	Synonyms									
	Hydroxytricarball	ylic acid								
	CAS-No.:	5949-29-1								
	М:	210.14 g/mol	EC-No.:	201-069-1						
	Formula Hill:	С ₆ H ₈ O ₇ * H ₂ O								
3.	Hazards identif	fication								
	lrritating to eyes.									
4.	First aid measu	res	an bar an tar ann an tar ann an tar an t		*****					
	After eye contact specialist.	act: wash off with plenty o t: rinse out with plenty of wa	of water. Remove contaminated of the with the eyelid held wide open y of water, induce vomiting, sum	n. Summon eye						
5.	Fire-fighting m	easures								
	Suitable extinguis powder, foam, spr									
	Special risks: Combustible. Dev	elopment of hazardous comb	ustion gases or vapours possible i	n the event of fire.						
			ble chemical protection clothing a	and self-contained						
	Other information Contain escaping groundwater.		ire-fighting water from entering s	urface water or						

The Safety Data Sheets are also available at http://www.chemdat.de

Merck Safety Data Sheet According to EC Directive 91/155/EEC Catalogue No .: 100242 Product name: Citric acid monohydrate cryst. extra pure Ph Eur, BP, USP, E 330 Accidental release measures 6. Person-related precautionary measures: Avoid substance contact. 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: Store protected from solvents. No further requirements. Storage: Tightly closed. Dry. Storage temperature: no restrictions. Requirements for storage rooms and containers: No metal containers. 8. Exposure controls/personal protection Specific control parameter German regulations MAK Germany (max. workplace conc.) Name Citric acid see MAK-List - Substances for which, as yet, no MAK Value can be Value Established 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: required Industrial hygiene: Change contaminated clothing. Application of skin- protective barrier cream recommended. Wash hands after working with substance. 9. Physical and chemical properties solid Form: Colour: white Odour: odourless pH value at 50 g/l H₂O (25 °C) 1.85 Melting point 135-152 °C

The Safety Data Sheets are also available at http://www.chemdat.de

10	erck Safety Data Sheet	100242			According to EC Directive 91/155/EEC				
	Catalogue No.: Product name:	100242 Citric acid me	onohydrate crys	t. extra pu	re Ph Eur, BP, USP, E 330				
	Boiling point		(decomp	osition)					
	Ignition temperature		345	°C	(anhydrous substance)				
	Flash point		not appli	cable					
	- F	wer	not avail						
	up Vapour pressure	(20 °C)	not avail	able hPa					
	Density	(20 °C) (20 °C)	< 0.1 1.54	nra g/cm ³	(anhydrous substance)				
	Bulk density	(20 C)		00 kg/m^3					
	Solubility in		500 10	oo ngiin					
	water	(20 °C)	~ 1630	g/l					
	ethanol	(25 °C)	419	g/l					
	ether Thermal decomposition		sparingly > 170	°C					
	log P(oct):	(20 °C)	-1.72	L.	(anhydrous substance)				
		(20 0)	1.72						
).	Stability and reactivity								
	Conditions to be avoided								
	Strong heating.								
	Substances to be avoided								
	metals, oxidizing agent, bases, reducing agents.								
	Hazardous decomposition	products							
	not known to date								
	Further information								
	releases water of crystallizat	ion when heated.							
۱.	Toxicological informatio	'n							
	Acute toxicity								
	LD ₅₀ (oral, rat): 3000 mg/kg (anhydrous substance).								
	Subacute to chronic toxicity								
	No impairment of reproductive performance in animal experiments. No teratogenic effect in animal experiments.								
	Bacterial mutagenicity: Ames-Test: negative.								
	Further toxicological information								
	Substance which occurs in th After inhalation of dust: Irrit After skin contact: Slight irri After eye contact: Irritations.	Substance which occurs in the human body under physiological conditions. After inhalation of dust: Irritation symptoms in the respiratory tract. After skin contact: Slight irritations. After eye contact: Irritations. After swallowing of large amounts: Irritations of: mucous membranes (stomach); coughing, pain, bloody vomiting.							
	Further data								
	Further data Further hazardous properties cannot be excluded. The product should be handled with the care usual								
	Further hazardous properties when dealing with chemicals		d. The product s	should be l	nandled with the care usual				

The Safety Data Sheets are also available at http://www.chemdat.de

According to EC Directive 91/155/EEC

Catalogue No.: 100242 Product name: Citric acid

Citric acid monohydrate cryst. extra pure Ph Eur, BP, USP, E 330

12. Ecological information Biologic degradation: Biodegradation: >98 % /2 d Zahn-Wellens test; Easily eliminable. Behavior in environmental compartments: Distribution: log p(o/w): -1.72 (20 °C) (anhydrous substance); No bioaccumulation is to be expected (log P(o/w < 1)). Ecotoxic effects: Biological effects: Harmful effect due to pH shift. Fish toxicity: L.idus LC₅₀: 440-760 mg/l /96 h (anhydrous substance); Daphnia toxicity: Daphnia magna EC₅₀: ~120 mg/l /72 h (anhydrous substance). Maximum permissible toxic concentration: Protozoa: E.sulcatum EC₅: 485 mg/l /72 h (anhydrous substance); Bacterial toxicity: Ps.putida EC₅: >10000 mg/l /16 h (anhydrous substance); M.aeruginosa EC₅: 80 mg/l /8 d (anhydrous substance); Algeal toxicity: Sc.quadricauda IC₅: 640 mg/l /7 d (anhydrous substance); Further ecologic data: Degradability: BOD: 0.481 g/g (for the monohydrate); TOD: 0.686 g/g (for the monohydrate); COD: 0.685 g/g (for the monohydrate). No ecological problems are to be expected when the product is handled and used with due care and attention. 13. Disposal considerations Product: There are no uniform EC Regulations for the disposal of chemicals or residues. Chemical residues generally count as special waste. The disposal of the latter is regulated in the EC member countries through corresponding laws and regulations. We recommend that you contact either the authorities in charge or approved waste disposal companies which will advise you on how to dispose of special waste. Packaging: Disposal in compliance with official regulations. Handle contaminated packaging in the same way as the substance itself. If not officially specified differently, non-contaminated packaging may be treated like household waste or recycled. 14. Transport information Entire package: not subject to transport regulations. 15. Regulatory information Labelling according to EC Directives Symbol: Xi Irritant **R-phrases:** Irritating to eyes. 36 S-phrases: 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. The Safety Data Sheets are also available at http://www.chemdat.de Page 4 of 5

According to EC Directive 91/155/EEC

Catalogue No.: Product name: 100242 Citric acid monohydrate cryst. extra pure Ph Eur, BP, USP, E 330

16. Other information

Change in labelling.

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: 19.09.2000

1.	Identification o Identification of			n and of the company/unde	ertaking		
	Catalogue No.: 101905						
	Product name:	Silic	a gel granules, des	siccant ~ 0,2 - 1 mm			
	Manufacturer/su	pplier iden	tification				
	Company:		Merck KGaA *	64271 Darmstadt * Germany *	Tel: +49 6151 72-0		
	Emergency teleph	one No.:	Please contact t in your country.	he regional Merck representatio	'n		
2.	Composition/in	formation	on ingredients				
	silicon dioxide am	orphous.					
	CAS-No.:	7631-86	-9				
	М:	60.09 g	/mol	EC-No.:	231-545-4		
	Formula Hill:	O ₂ Si					
3.	Hazards identif	ication					
	No hazardous proc	luct as speci	fied in Directive 6	7/548/EEC.			
4.	First aid measu	res					
	After inhalation: fi After skin contact: After eye contact: After swallowing (resh air. wash off wirinse out wi	h water.	f feeling unwell.			
5.	Fire-fighting me	easures					
	Suitable extinguish In adaption to mate		in the immediate r	neighbourhood.			
	Special risks: Non-combustible.						
6.	Accidental relea	ise measur	es				
	Person-related pred Avoid inhalation o		easures:				
	Procedures for clea Take up dry. Forw	aning / absor ard for dispo	ption: osal. Clean up affec	cted area. Avoid generation of d	lusts.		
7.	Handling and st	orage					
	Handling:						
	Protect from moist	ure.					
	Storage:						
		0					

Tightly closed. Dry. Storage temperature: no restrictions.

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	rck Safety Data She	et			According to EC Directive 91/155/EEC		
	Catalogue No.: Product name:		01905 Silica gel granul	les, desiccant ~ 0,2 - 1 mm			
8.	Exposure controls/pe	ersonal p	rotection				
	Specific control paran	neter					
	German regulations						
	MAK Germany (max. w Name Value Embryotoxic	S 4	ilica, amorphoi mg/m ³	us inhalable dust expected by maintaining TLV			
	Personal protective eq	uipment:					
	concentration and quan	tity of the	hazardous sub	ly for the working place, depe stances handled. The resistar ined with the respective suppli	nce of the		
	Respiratory protection:	r	equired when d	usts are generated.			
	Eye protection:	r	equired				
	Hand protection:	ι	lse recommend	ed			
	Industrial hygiene: Wash hands after workir	ng with su	bstance.				
	Change contaminated cl	othing. W	ash hands after	working with substance.			
9.	Physical and chemical properties						
	Form:	S	olid				
	Colour:	-	rownish				
	Odour:	0	dourless				
	pH value			not available			
	Melting point			not available			
	Boiling point Ignition temperature			not available not available			
	Flash point			not available			
	Explosion limits	lower		not available			
		upper		not available			
	Density			not available			
				~ 750-800 kg/m ³			
	Bulk density						
	Bulk density Solubility in water	1	20 °C)	insoluble			

According to EC Directive 91/155/EEC

Catalogue No.: Product name: 101905 Silica gel granules, desiccant ~ 0,2 - 1 mm

11. Toxicological information

Acute toxicity

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

Subacute to chronic toxicity

An embryotoxic effect need not be feared when the threshold limit value is observed.

Further toxicological information

This is a generally physiologically inert substance that displays no hazardous properties after oral intake and skin contact and after inhalation of its dusts as long as the total dust limit for silicic acid is adhered to. Intensive contact with the eye may lead to irritation symptoms.

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:

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

13. Disposal considerations

Product:

There are no uniform EC Regulations for the disposal of chemicals or residues. Chemical residues generally count as special waste. The disposal of the latter is regulated in the EC member countries through corresponding laws and regulations. We recommend that you contact either the authorities in charge or approved waste disposal companies which will advise you on how to dispose of special waste.

Packaging:

Disposal in compliance with official regulations. Handle contaminated packaging in the same way as the substance itself. If not officially specified differently, non-contaminated packaging may be treated like household waste or recycled.

14. Transport information

Not subject to transport regulations.

15. Regulatory information

Labelling according to EC DirectivesSymbol:---R-phrases:---S-phrases:---

Catalogue No.: Product name: 101905 Silica gel granules, desiccant ~ 0,2 - 1 mm

16. Other information

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: 03.03.2002 Supersedes edition of 30.10.2001

1.	Identification of t	he substa	nce/preparation	and of the company/undert	aking				
	Identification of th	e product							
	Catalogue No.:	10098	33						
	Product name:	Ethan	ol absolute GR for	analysis ACS,ISO					
	Company/undertal	king identif	fication						
	Company:		Merck KGaA * 6	4271 Darmstadt * Germany * Te	el: +49 6151 72-0				
	Emergency telephon	e No.:	Please contact the in your country.	regional Merck representation					
2.	Composition/info	rmation o	n ingredients						
	Synonyms								
	Ethyl alcohol, Spirit,	, Spirit of w	ine						
	CAS-No.:	64-17-5		EC-Index-No.:	603-002-00-5				
	<i>M:</i> Formula Hill:	46.07 g/r C ₂ H ₆ O	not	EC-No.:	200-578-6				
	Chemical formula:	с2н60 С2Н5ОН							
3.	Hazards identific:	ation							
	Highly flammable.								
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 ophtalmologist if necessary. After swallowing: immediately make victim drink plenty of water. Consult doctor if feeling unwell.								
5.	Fire-fighting mea	sures							
	Suitable extinguishing media: CO ₂ , foam, powder.								
	Special risks: Combustible. Vapours heavier than air. Forms explosive mixtures with air at ambient temperatures. 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: Cool container with spray water from a save distance. Contain escaping vapours with water. Prevent fire-fighting water from entering surface water or groundwater. Keep away sources of ignition.								
				F , a deserved	-				

The Safety Data Sheets for catalog items are also available at www.chemdat.de

	erck Safety Data She		0.0.0.2				According to EC Directive 91/155/EEC			
	Catalogue No.: Product name:		0983 hanol absolute	e GR for ana	lysis ACS,	ISO				
6.	Accidental release m	easures								
	Person-related precautic Do not inhale vapours/a	onary measu erosols. Ens	res: oure supply of	fresh air in e	enclosed ro	oms.				
	Environmental-protection measures: Do not allow to enter sewerage system; risk of explosion!									
	Procedures for cleaning Take up with liquid-abs area.	/ absorption orbent mate	rial (e.g. Cher	nizorb®). F	orward for	disposal. Cle	ean up affected			
7.	Handling and storag	e								
	Handling:									
	Notes for prevention of Keep away from source:			res to preven	t electrosta	tic charging.				
	Storage:									
	Tightly closed. In a well	-ventilated	place. At +15	°C to +25°C.						
8.	Exposure controls/personal protection									
	Personal protective equipment:									
	Protective clothing sho concentration and quan protective clothing to ch	itity of the h	nazardous sub	stances hand	fled. The	resistance of	on f the			
	Respiratory protection:	rec		apours/aeros	ols are gen	erated. Filter	A (acc. to DIN			
	Eye protection:	rec	uired							
	Hand protection:	rec	uired							
	Industrial hygiene: Change contaminated clothing. Application of skin- protective barrier cream recommended. Wash hands after working with substance.									
9.	Physical and chemica	al properti	es							
	Form:	liq								
	Colour:		ourless							
	Odour:	alc	ohol-like							
	pH value at 10 g/1 H ₂ O	(20	°C)	7.0						
	10 g/l H_20 Viscosity dynamic		°C)	1.2	mPa*s					
	Melting point	(20	~,	-114.5	°C					
	Boiling point			78.3	°C					
	Ignition temperature			425	°C					
	Flash point			12	°C	c.c.				
	Explosion limits	lower		3.5	Vol%					
		upper		15	Vol%					
	Vapour pressure	(20	°C)	59	hPa					

Catalogue No.: 100983 Ethanol absolute GR for analysis ACS,ISO Relative vapour density 1.6 Density (20 °C) 0.790-0.793g/cm ³ Solubility in water (20 °C) soluble organic solvents soluble log Pow: -0.32 Bioconcentration factor 0.66 10. Stability and reactivity Conditions to be avoided alkali metals, alkaline earth metals, alkali oxides, strong oxidizing agents, halogen-halogen compounds, CrO ₂ , chromyl chloride, ethylene oxide, fluorine, perchlorates, potassium permanganate / sulfuric acid, perchloric acid, permanganic acid, phosphorus oxides, nitric acid, nitrogen dioxide, uranium hexafluoride, hydrogen peroxide. Hazardous decomposition products no information available Further information highly inflammable; usuitable working materials: various plasties, rubber; Explosible with air in a vaporous/gaseous state.		rck Safety Data Sheet		According to EC Directive 91/155/EEC							
Density (20 °C) 0.790-0.793g/cm ³ Solubility in soluble organic solvents soluble log Pow: -0.32 Bioconcentration factor 0.66 10. Stability and reactivity Conditions to be avoided Heating. Substances to be avoided alkali metals, alkaline earth metals, alkali oxides, strong oxidizing agents, halogen-halogen compounds, CrO3, chromyl chloride, ethylene oxide, fluorine, perchlorates, potassium permanganate / sulfuric acid, perchloric acid, permanganic acid, phosphorus oxides, nitric acid, nitrogen dioxide, uranium hexafluoride, hydrogen percoxide. Hazardous decomposition products no information available Further information highly inflammable; uusuitable working materials: various plasties, rubber; Explosible with air in a vaporous/gaseous state. 11. Toxicological information Acute toxicity LC50 (inhalation, rat): >8000 mg/l /4 h. LD30 (dermal, rabbi): >20000 mg/kg. LD30 (dermal, rabbi): 20000 mg/kg. LD30 (dermal, rabbi): Slight irritations. Skin irritation test (rabbit): Slight irritations. Skin irritation test (rabbit): Slight irritations. Skin irritation test (rabbit): Slight irritations. Subacute to chronic toxicity Sensitization: Sensitization test (rabbit):											
Density (20 °C) 0.790-0.793g/cm ³ Solubility in water (20 °C) soluble organic solvents soluble log Pow: -0.32 Bioconcentration factor 0.66 10. Stability and reactivity Conditions to be avoided Heating. Substances to be avoided alkali metals, alkaline earth metals, alkali oxides, strong oxidizing agents, halogen-halogen compounds, CHO3, chromyl chloride, ethylene oxide, fluorine, perchlorates, potassium permanganate / sulfuric acid, perchloric acid, permanganic acid, phosphorus oxides, nitric acid, nitrogen dioxide, urranium hexafluoride, hydrogen percovide. Hazardous decomposition products no information highly inflammable; unsuitable working materials: various plastics, rubber; Explosible with air in a vaporous/gaseous state. 11. Toxicological information Acute toxicity LC50 (inhalation, rat): >8000 mg/l /4 h. LD50 (dermal, rabi): >20000 mg/kg. LD50 (dermal, rabi): >20000 mg/kg. LD50 (dermal, rabi): Silght irritations. Skin irritation test (rabbit): Silght irritations. Skin irritation test (rabbit): Silght irritations. Skin irritation test (rabbit): Silgh		Relative vapour density		16							
Solubility in water (20 °C) soluble organic solvents soluble log Pow: -0.32 Bioconcentration factor 0.66 10. Stability and reactivity Conditions to be avoided alkaline earth metals, alkali oxides, strong oxidizing agents, halogen-halogen compounds, Cr03, chromyl chloride, ethylene oxide, fluorine, perchlorates, potassium permanganate / sulfric acid, perchlorid, ethylene oxide, fluorine, perchlorates, potassium permanganate / sulfric acid, perchlorid, ethylene oxide, fluorine, perchlorates, potassium permanganate / sulfric acid, perchlorates, intric acid, nitrogen dioxide, uranium hexafluoride, hydrogen peroxide. Hazardous decomposition products no information mavilable <i>Further information</i> Acute toxicity LC50 (inhalation, rat): >8000 mg/l /4 h. LD500 (dermal, rabbil): >20000 mg/kg. LD500 (dermal, rabbil): Sight irritations. Skubacute to chronic toxicity Sensitization test (rabbil): Slight irritations. Subacute to chronic toxicity Sensitization test (rabbil): Slight irritations. Subacute to chronic toxicity Senstization test (rabbil): Sli		, ,	(20°C)								
water (20 °C) soluble organic solvents soluble log Pow: 0.32 Bioconcentration factor 0.66 10. Stability and reactivity Conditions to be avoided Heating. Substances to be avoided alkali metals, alkaline earth metals, alkali oxides, strong oxidizing agents, halogen-halogen compounds, CrO ₂ , chromyl chloride, ethylene oxide, fluorine, perchlorates, potassium permanganate / sulfuric acid, perchlorates, potassium permanganate / sulfuric acid, perchlorates, intric acid, nitrogen dioxide, uranium hexafluoride, hydrogen peroxide. Hazardous decomposition products no information available Further information highly inflammable; unsuitable working materials: various plastics, rubber; Explosible with air in a vaporous/gascous state. 11. Toxicological information Acute toxicity LC50 (inhalation, rat): >8000 mg/l /4 h. LD50 (dernal, rabbit): >20000 mg/kg. LD50 (dernal, rabbit): >20000 mg/kg. Specific symptoms in animal studies: Eye irritation test (rabbit): Slight irritations. Subacute to chronic toxicity Subacute to chronic toxicity Sensitization: Sensitization: Sensitization test (rabbit): Slight irritations. Subacute to chronic toxicity Sensitization test (rabbit): Slight irritations.		-	(20 0)	0.790 0.75B cm							
log Pow: -0.32 Bioconcentration factor 0.66 10. Stability and reactivity Conditions to be avoided Heating. Substances to be avoided alkali metals, alkaline earth metals, alkali oxides, strong oxidizing agents, halogen-halogen compounds, CrO ₃ , chromyl chloride, ethylene oxide, fluorine, perchlorates, potassium permanganate / sulfuric acid, perthloric acid, permanganic acid, phosphorus oxides, nitric acid, nitrogen dioxide, uranium hexafluoride, hydrogen percoxide. Hazardous decomposition products no information nighty inflammable; unsuitable Further information highly inflammable; unsuitable working materials: various plastics, rubber; Explosible with air in a vaporous/gaeous state. 11. Toxicological information Acute toxicity LC ₅₀ (inhalation, rat): >8000 mg/l /4 h. LD ₅₀ (dermal, rabbil): Slight irritations, Skin irritation test (rabbil): Slighti restive, An embryotoxic effect need not be f		-	(20 °C)	soluble							
Bioconcentration factor 0.66 10. Stability and reactivity Conditions to be avoided Alkali metals, alkaline earth metals, alkali oxides, strong oxidizing agents, halogen-halogen compounds, CrQ ₃ , chromyl chloride, ethylene oxide, fluorine, perchlorates, potassium permanganate / sulfuric acid, permanganic acid, phosphorus oxides, nitric acid, nitrogen dioxide, uranium hexafluoride, hydrogen peroxide. Hazardous decomposition products no information available Further information highly inflammable; unsuitable working materials: various plastics, rubber; Explosible with air in a vaporous/gaseous state. 11. Toxicological information Acute toxicity LC ₅₀ (inhalation, rat): >8000 mg/l /4 h. LD ₅₀ (dermal, rabbil): >20000 mg/kg. LD ₅₀ (dermal, rabbil): >20000 mg/kg. Specific symptoms in animal studies: Ey irritation test (rabbil): Slight irritations. Subacute to chronic toxicity Sensitization:		—		soluble							
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Heating. Substances to be avoided alkali metals, alkaline earth metals, alkali oxides, strong oxidizing agents, halogen-halogen compounds, CrO3, chromyl chloride, ethylene oxide, fluorine, perchlorates, potassium permanganate / sulfuric acid, perchloric acid, permanganic acid, phosphorus oxides, nitric acid, nitrogen dioxide, uranium hexafluoride, hydrogen peroxide. Hazardous decomposition products no information available Further information highly inflammable; unsuitable working materials: various plastics, rubber; Explosible with air in a vaporous/gaseous state. 11. Toxicological information Acute toxicity LC ₅₀ (inhalation, rat): >8000 mg/l /4 h. LD ₅₀ (dermal, rabbit): >20000 mg/kg. LD ₅₀ (dermal, rabbit): Slight irritations. Skin irritation test (rabbit): Slight irritations. Skin irritation test (rabbit): Slight irritations. Subacute to chronic toxicity Sensitization: Sensitization Sensitization An embryotoxic effect need not be feared when the threshold limit value is observed. Bacterial mutagenicity: Salmonella typhimurium: negative.	10.	Stability and reactivity									
Substances to be avoided alkali metals, alkaline earth metals, alkali oxides, strong oxidizing agents, halogen-halogen compounds, CrO ₃ , chromyl chloride, ethylene oxide, fluorine, perchlorates, potassium permanganate / sulfuric acid, perchloric acid, perchloric acid, phosphorus oxides, nitric acid, nitrogen dioxide, Hazardous decomposition products no information available Further information highly inflammable; unsuituble working materials: various plastics, rubber; Explosible with air in a vaporous/gaseous state. 11. Toxicological information Acute toxicity LC ₅₀ (inhalation, rat): >8000 mg/1/4 h. LD ₅₀ (dermal, rabbit): >20000 mg/kg. LD ₅₀ (dermal, rabbit): Slight irritations. Skin irritation test (rabbit): Slight irritations. Subacute to chronic toxicity Subacute to chronic toxicity Subacute to chronic toxicity Subacute to chronic toxicity Sensitization: Sensitization: Sensitization: Sensitization test (magnusson and Kligman): negative. An embryotoxic effect need not be feared when the threshold limit value is observed. Bacterial mutagenicity: Salmonella typhimurium: negative.		Conditions to be avoided									
 alkali metals, alkaline earth metals, alkali oxides, strong oxidizing agents, halogen-halogen compounds, CrO₃, chronyl chloride, ethylene oxide, fluorine, perchlorates, potassium permanganate / sulfuric acid, perchloric acid, permanganic acid, phosphorus oxides, nitric acid, nitrogen dioxide, uranium hexafluoride, hydrogen peroxide. <i>Hazardous decomposition products</i> no information available <i>Further information</i> highly inflammable; unsuitable working materials: various plastics, rubber; Explosible with air in a vaporous/gaseous state. 11. Toxicological information <i>Acute toxicity</i> LC₅₀ (inhalation, rat): >8000 mg/l /4 h. LD₅₀ (dermal, rabbit): >20000 mg/kg. LD₅₀ (oral, rat): Slight irritations. Skin irritation test (rabbit): Slight irritations. <i>Subacute to chronic toxicity</i> Sensitization: Sensitization: Sensitization test (Magnusson and Kligman): negative. An embryotoxic effect need not be feared when the threshold limit value is observed. Bacterial mutagenicity: Salmonella typhimurium: negative. 		Heating.									
 compounds, CrO₃, chromyl chloride, ethylene oxide, fluorine, perchlorates, potassium permanganate / sulfuric acid, perchloric acid, permanganic acid, phosphorus oxides, nitric acid, nitrogen dioxide, uranium hexafluoride, hydrogen peroxide. <i>Hazardous decomposition products</i> no information available <i>Further information</i> highly inflammable; unsuitable working materials: various plastics, rubber; Explosible with air in a vaporous/gaseous state. 11. Toxicological information <i>Acute toxicity</i> LC₅₀ (inhalation, rat): >8000 mg/l /4 h. LD₅₀ (dermal, rabbit): >20000 mg/kg. Specific symptoms in animal studies: Eye irritation test (rabbit): Slight irritations. <i>Subacute to chronic toxicity</i> Sensitization: Sensitizatio		Substances to be avoided									
no information available Further information highly inflammable; unsuitable working materials: various plastics, rubber; Explosible with air in a vaporous/gaseous state. II. Toxicological information Acute toxicity LC ₅₀ (inhalation, rat): >8000 mg/1/4 h. LD ₅₀ (dermal, rabbit): >20000 mg/kg. LD ₅₀ (oral, rat): 6200 mg/kg. Specific symptoms in animal studies: Eye irritation test (rabbit): Slight irritations. Skin irritation test (rabbit): Slight irritations. Subacute to chronic toxicity Sensitization: Sensitization: Sensitization: An embryotoxic effect need not be feared when the threshold limit value is observed. Bacterial mutagenicity: Salmonella typhimurium: negative.		alkali metals, alkaline earth metals, alkali oxides, strong oxidizing agents, halogen-halogen compounds, CrO ₃ , chromyl chloride, ethylene oxide, fluorine, perchlorates, potassium permanganate / sulfuric acid, perchloric acid, permanganic acid, phosphorus oxides, nitric acid, nitrogen dioxide,									
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Sensitization: Sensitisation test (Magnusson and Kligman): negative. An embryotoxic effect need not be feared when the threshold limit value is observed. Bacterial mutagenicity: Salmonella typhimurium: negative.		Eye irritation test (rabbit): Slight irritations.									
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Bacterial mutagenicity: Salmonella typhimurium: negative.											
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The Safety Data Sheets for catalog items are also available at www.chemdat.de

According to EC Directive 91/155/EEC

Catalogue No.: Product name: 100983 Ethanol absolute GR for analysis ACS,ISO

Further toxicological information

After inhalation of vapours: slight mucosal irritations. Risk of absorption. After skin contact: After long-term exposure to the chemical: dermatitis. After eye contact: Slight irritations. After swallowing of large amounts: nausea and vomiting. Systemic effects: euphoria. After absorption of large quantities: dizziness, inebriation, narcosis, respiratory paralysis.

Further data

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

12. Ecological information

Abiotic degradation: Rapid degradation. (air)

Biologic degradation: Biodegradation: 94 % modified OECD screening test; Readily biodegradable.

Behavior in environmental compartments: Distribution: log p(o/w): -0.32; No bioaccumulation is to be expected (log $P(o/w \le 1)$).

Ecotoxic effects: Biological effects: In high concentrations: Harmfull effect on aquatic organisms. When used properly, no impairments in the function of waste- water-treatment plants are to be expected. Fish toxicity: L.idus LC_{50} : 8140 mg/l /48 h; Daphnia toxicity: Daphnia magna EC_{50} : 9268-14221 mg/l /48 h; Maximum permissible toxic concentration: Algeal toxicity: Sc.quadricauda IC₅: 5000 mg/l /7 d; Bacterial toxicity: Ps.putida EC₅: 6500 mg/l /16 h; Protozoa: E.sulcatum EC₅: 65 mg/l /72 h.

Further ecologic data: BOD₅: 0.93-1.67 g/g; COD: 1.99 g/g; TOD: 2.10 g/g; BOD 74 % from TOD /5 d; COD 90 % from TOD;

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

13. Disposal considerations

Product:

There are no uniform EC Regulations for the disposal of chemicals or residues. Chemical residues generally count as special waste. The disposal of the latter is regulated in the EC member countries through corresponding laws and regulations. We recommend that you contact either the authorities in charge or approved waste disposal companies which will advise you on how to dispose of special waste.

Packaging:

Disposal in compliance with official regulations. Handle contaminated packaging in the same way as the substance itself. If not officially specified differently, non-contaminated packaging may be treated like household waste or recycled.

	erck Safety Data Sheet		According to EC Directive 91/155/EEC					
	Catalogue No.: Product name:	100983 Ethanol absolu	te GR for analysis ACS,ISO					
14.	Transport information							
	Land transport	GGVS, GGVE	, ADR, RID					
	Classification	3/3Ъ						
	Name	1170 ETHAN	NOL (ETHYLALKOHOL)					
	Transport by river	ADN, ADNR						
	Classification	not tested						
	Transport by sea	IMDG, GGVSe	ee					
	Classification	3/UN 1170/PG	II					
	Ems	3-06						
	Name	ETHANOL						
	Transport by air	ICAO, IATA						
	Classification	3/UN 1170/PG	11					
	Name The transport regulations applicable in Germany (GGV considered. THESE TRANSPORT DAT	/S/GGVE). Possible	g to international regulations and in the form e national deviations in other countries are not					
15.	Regulatory information							
	Labelling according to EC	C Directives						
	Symbol:	F	Highly flammable					
	R-phrases:	11	Highly flammable.					
	S-phrases:	7-16	Keep container tightly closed. Keep away from sources of ignition - No smoking.					
	EC-No.:	200-578-6	EC label					
16.	Other information							
	Reduced labelling on the con	tainer due to small o	quantity.					
	Chapter 8: specific control parameter. Chapter 14: transport information.							
	General update.							
	Regional representation:							
	Regional representation:							
	Regional representation: This information is given on for your country.	the authorised Safet	y Data Sheet					

The Safety Data Sheets for catalog items are also available at www.chemdat.de

Safety data sheet

According to EC Directive 91/155/EEC

Date of issue: 10.02.2000 Supersedes edition of 23.06.1989

1.	Identification of t	he substa	nce/preparatio	n and of the company/unde	rtaking	
	Identification of th	e product				
	Catalogue No.:	1061	61			
	_					
	Product name:	Mure	exide (ammonium	purpurate) metal indicator ACS		
	Manufacturer/supp	olier ident	ification			
	Company:		Merck KGaA *	64271 Darmstadt * Germany *	Tel: +49 6151 72-2440	
	Emergency telephon	e No.:	Please contact the in your country.	he regional Merck representatio	1	
2.	Composition/info	rmation o	on ingredients			
	Synonyms					
	Ammonium purpura	te, acid				
	CAS-No.:	3051-09-	0			
	M:	284.19		EC-No.:	221-266-6	
	Molecular formula:	C ₈ H ₈ N ₆	-			
	(Hill)					
3.	Hazards identific:	otion				
	No hazardous produc		ied in Directive 67	7/548/EEC		
4.	First aid measure	5				
	After eye contact: r	wash off winse out wi	th plenty of water	r. Remove contaminated clothin with the eyelid held wide open. of water, induce vomiting, sun	-	
5.	Fire-fighting meas	sures	9			
	Suitable extinguishin Water, foam, powder					
	Special risks: Combustible.					
	Other information:					
		water from	entering surface	water or groundwater.		
6.	Accidental release	measure	s			
	Person-related precau Avoid generation of o	itionary me lusts; do n	easures: ot inhale dusts.			
	Environmental-protection Do not allow to enter					
	Procedures for cleani Take up dry. Forward	ng / absorp I for dispos	otion: sal. Clean up affec	cted area.		

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	erck Safety Data S					According to EC Directive 91/155/EEC			
	Catalogue No Product name		106161 Murexide (amm	onium purpı	irate) meta	l indicator ACS			
•	Handling and stor	age							
	Handling:								
	No further requireme	nts.							
	Storage:								
	Dry. Tightly closed. 1	No further	requirements. Sto	rage temper:	ature: no re	strictions			
	Tightly closed.		1						
•	Exposure controls	/persona	l protection		_				
	Personal protective	e equipme	nt:						
	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	n:	required when du	usts are gene	erated.				
	Eye protection:		required						
	Hand protection:		required						
	Industrial hygiene: Change contaminated	clothing.	Wash hands after	working wit	h substance	2.			
	Physical and chem	ical prop	perties						
•	Physical and chem Form:	ical prop	oerties solid						
•	Form: Colour:	iical prop	solid dark brown						
-	Form: Colour: Odour:	iical prop	solid						
	Form: Colour: Odour: pH value	ical prop	solid dark brown odourless	~ 5					
-	Form: Colour: Odour: pH value at 1 g/1 H ₂ O	iical prop	solid dark brown	~ 5 not avail	able				
•	Form: Colour: Odour: pH value at 1 g/1 H ₂ O Melting point	iical prop	solid dark brown odourless	not avail					
-	Form: Colour: Odour: pH value at 1 g/1 H ₂ O	iical prop	solid dark brown odourless		able				
-	Form: Colour: Odour: pH value at 1 g/l H ₂ O Melting point Boiling point	iical prop	solid dark brown odourless	not avail not avail	able able				
	Form: Colour: Odour: pH value at 1 g/l H ₂ O Melting point Boiling point Ignition temperature	lower	solid dark brown odourless	not avail not avail not avail not avail not avail	able able able able				
-	Form: Colour: Odour: pH value at 1 g/1 H ₂ O Melting point Boiling point Ignition temperature Flash point Explosion limits		solid dark brown odourless	not avail not avail not avail not avail not avail not avail	able able able able able				
	Form: Colour: Odour: pH value at 1 g/l H ₂ O Melting point Boiling point Ignition temperature Flash point Explosion limits Density	lower	solid dark brown odourless	not avail not avail not avail not avail not avail not avail not avail	able able able able able able				
-	Form: Colour: Odour: pH value at 1 g/1 H ₂ O Melting point Boiling point Ignition temperature Flash point Explosion limits Density Bulk density	lower	solid dark brown odourless	not avail not avail not avail not avail not avail not avail	able able able able able				
-	Form: Colour: Odour: pH value at 1 g/1 H ₂ O Melting point Boiling point Ignition temperature Flash point Explosion limits Density Bulk density Solubility in water	lower	solid dark brown odourless (20 °C)	not avail not avail not avail not avail not avail not avail not avail	able able able able able able				
-	Form: Colour: Odour: pH value at 1 g/1 H ₂ O Melting point Boiling point Ignition temperature Flash point Explosion limits Density Bulk density Solubility in water ethanol	lower upper	solid dark brown odourless (20 °C)	not avail not avail not avail not avail not avail not avail ~ 330 ~ 1	able able able able able kg/m ³ g/l	insoluble			
-	Form: Colour: Odour: pH value at 1 g/1 H ₂ O Melting point Boiling point Ignition temperature Flash point Explosion limits Density Bulk density Solubility in water	lower upper	solid dark brown odourless (20 °C)	not avail not avail not avail not avail not avail not avail ~ 330	able able able able able able kg/m ³	insoluble			
	Form: Colour: Odour: pH value at 1 g/1 H ₂ O Melting point Boiling point Ignition temperature Flash point Explosion limits Density Bulk density Solubility in water ethanol	lower upper	solid dark brown odourless (20 °C)	not avail not avail not avail not avail not avail not avail ~ 330 ~ 1	able able able able able kg/m ³ g/l	insoluble			
	Form: Colour: Odour: pH value at 1 g/1 H ₂ O Melting point Boiling point Ignition temperature Flash point Explosion limits Density Bulk density Solubility in water ethanol	lower upper	solid dark brown odourless (20 °C)	not avail not avail not avail not avail not avail not avail ~ 330 ~ 1	able able able able able kg/m ³ g/l	insoluble			
-	Form: Colour: Odour: pH value at 1 g/1 H ₂ O Melting point Boiling point Ignition temperature Flash point Explosion limits Density Bulk density Solubility in water ethanol	lower upper	solid dark brown odourless (20 °C)	not avail not avail not avail not avail not avail not avail ~ 330 ~ 1	able able able able able kg/m ³ g/l	insoluble			
-	Form: Colour: Odour: pH value at 1 g/1 H ₂ O Melting point Boiling point Ignition temperature Flash point Explosion limits Density Bulk density Solubility in water ethanol	lower upper	solid dark brown odourless (20 °C)	not avail not avail not avail not avail not avail not avail ~ 330 ~ 1	able able able able able kg/m ³ g/l	insoluble			
-	Form: Colour: Odour: pH value at 1 g/1 H ₂ O Melting point Boiling point Ignition temperature Flash point Explosion limits Density Bulk density Solubility in water ethanol	lower upper	solid dark brown odourless (20 °C)	not avail not avail not avail not avail not avail not avail ~ 330 ~ 1	able able able able able kg/m ³ g/l	insoluble			
-	Form: Colour: Odour: pH value at 1 g/1 H ₂ O Melting point Boiling point Ignition temperature Flash point Explosion limits Density Bulk density Solubility in water ethanol	lower upper	solid dark brown odourless (20 °C)	not avail not avail not avail not avail not avail not avail ~ 330 ~ 1	able able able able able kg/m ³ g/l	insoluble			

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Me	rck Safety Data Sheet		According to EC Directive 91/155/EEC					
	Catalogue No.: Product name:	106161 Murexide (ammonium purpur	ate) metal indicator ACS					
10.	Stability and reactivity							
	Conditions to be avoided							
	no information available							
	Substances to be avoided							
	no information available							
	Hazardous decomposition	products						
	no information available							
11.	Toxicological information	1						
	Acute toxicity							
	Quantitative data on the toxic	ity of this product are not availabl	e.					
	Further toxicological infor	mation						
	We have no description of an Hazardous properties cannot appropriately.	y toxic symptoms. be excluded but are unlikely v	when the product is handled					
	Further data							
	The product should be handle	d with the care usual when dealing	g with chemicals.					
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 attention.	be expected when the product is	handled and used with due care and					
13.	Disposal considerations							
	Product:							
	residues generally count as member countries through cor	egulations for the disposal of cher special waste. The disposal of the responding laws and regulations ge or approved waste disposal cor						
	Packaging:							
		ith official regulations. Handle itself. If not officially specified of household waste or recycled.						
14.	Transport information	anna a tha ann an Anna an Anna ann an Anna an Anna an Anna an Anna an Anna an Anna Anna an Anna an Anna an Anna						
	Not subject to transport regula	tions.						

Merck	Safety Data Sheet		According to EC Directive 91/155/EEC
	Catalogue No.: Product name:	106161 Murexide (ammonium purpura	te) metal indicator ACS
5. Re	egulatory information		
	belling according to EC	C Directives	
	mbol:		
	phrases: phrases:		
6. OI	ther information		
Re	ason for alteration		
Ge	neral update.		
Ch	ange in product name.		
Re	gional representation:		
Th for	is information is given on your country.	the authorised Safety Data Sheet	
	characterizes th	contained herein is based on the preser e product with regard to the appropriate antee of the properties of the product.	nt state of our knowledge. It e safety precautions. It does not