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

1.1 Product identifier

Trade name

Wirolyt (REF 52460, 54920)

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

Relevant identified uses of the substance or mixture
Manufacturing of dental prosthesis in a dental laboratory

Uses advised against
No data available.

1.3 Details of the supplier of the safety data sheet

Address
BEGO Bremer Goldschlägerei
Wilh. Herbst GmbH & Co. KG
Wilhelm-Herbst-Str. 1
28359 Bremen

Telephone no. +49/ 421/ 2028 – 0
Fax no. +49/ 421/ 2028 – 115
e-mail msds@bego.com

Information provided by / telephone
Research & Development Department - Materials, alloys and ceramics; +49/ 421/ 2028 – 130 (Chief Development Officer alloys)

Advice on Safety Data Sheet
msds@bego.com

1.4 Emergency telephone number

For medical advice (in German and English):
+49 (0)551 192 40 (Giftinformationszentrum Nord)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification in accordance with Regulation (EC) No 1272/2008 (CLP)
Acute Tox. 4; H302
Eye Dam. 1; H318
Met. Corr. 1; H290
Skin Corr. 1; H314
STOT RE 2; H373o

Classification information
Product is classified as “Corrosive” based on the extreme pH-value, see:
- Regulation 1272/2008 (CLP), Annex. I, number 3.2.2.2 / 3.2.3.1.2
This product is assessed and classified using the methods and criteria below referred to in Article 9 of Regulation (EC) n° 1272/2008:
Physical hazards: determined through assessment data based on the methods or standards referred to in part 2 of Annex I to CLP
Health hazards and environmental hazards: determined through toxicological and ecotoxicological assessment data based on the methods or standards referred to in Part 3, 4 and 5 of Annex I to CLP.

2.2 Label elements

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

Hazard pictograms

GHS05 GHS07 GHS08

Signal word
Danger

Hazardous component(s) to be indicated on label:
ethanediol
sulphuric acid

Hazard statement(s)

H290	May be corrosive to metals.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H373o	May cause damage to organs through prolonged or repeated exposure if swallowed.

Precautionary statement(s)

P260	Do not breathe mist/vapours/spray.
P280	Wear protective gloves/protective clothing/eye protection.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor.
P501	Dispose of contents/container to a facility in accordance with local and national regulations.

2.3 Other hazards

PBT assessment
No data available.

vPvB assessment
No data available.

SECTION 3: Composition/information on ingredients

3.1 Substances

Not applicable. The product is not a substance.

3.2 Mixtures

Hazardous ingredients

No	Substance name		Additional information	
	CAS / EC / Index / REACH no	Classification (EC) 1272/2008 (CLP)	Concentration	%
1	**ethanediol**			
	107-21-1 203-473-3 603-027-00-1 01-2119456816-28	Acute Tox. 4; H302 STOT RE 2; H373o	> 90.00	wt%
2	**sulphuric acid**			
	7664-93-9 231-639-5 016-020-00-8 01-2119458838-20	Skin Corr. 1A; H314 Eye Dam. 1; H318	>= 5.00 - < 10.00	wt%

Full Text for all H-phrases and EUH-phrases: pls. see section 16

No	Note	Specific concentration limits	M-factor (acute)	M-factor (chronic)
2	B	Eye Irrit. 2; H319: C >= 5% Skin Irrit. 2; H315: C >= 5% Eye Dam. 1; H318: C >= 15% Skin Corr. 1A; H314: C >= 15%	-	-

Full text for the notes: pls. see section 16 “Notes relating to the identification, classification and labelling of substances ((EC) No 1272/2008, Annex VI)”.

No	Route, target organ, concrete effect
1	H373 oral; kidneys; -

SECTION 4: First aid measures

4.1 Description of first aid measures

General information
In case of persisting adverse effects, consult a physician. Remove contaminated clothing and shoes immediately, and launder thoroughly before reusing.

After inhalation
Ensure supply of fresh air. Remove affected person from the immediate area.

After skin contact
When in contact with the skin, clean with soap and water. Seek medical attention.

After eye contact
Remove contact lenses, irrigate copiously with clean, fresh water for at least 15 minutes, holding the eyelids apart and seek medical advice.

After ingestion
Do not induce vomiting. Rinse the mouth thoroughly with water. Never give anything by mouth to an unconscious person. Let plenty of water be drunk in small gulps. Call a doctor immediately.

4.2 Most important symptoms and effects, both acute and delayed
No data available.

4.3 Indication of any immediate medical attention and special treatment needed
No data available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Carbon dioxide; Extinguishing powder; Water spray jet; Foam

Unsuitable extinguishing media
High power water jet

5.2 Special hazards arising from the substance or mixture
In the event of fire, the following can be released: Sulphur oxides (SxOy); Carbon monoxide and carbon dioxide

5.3 Advice for firefighters
Adapt extinguisher and fire-fighting measures to fire in the environment. Use self-contained breathing apparatus. Wear protective clothing.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel
Avoid contact with skin, eyes and clothing. Refer to protective measures listed in sections 7 and 8.

For emergency responders
No data available. Personal protective equipment (PPE) - see Section 8.

6.2 Environmental precautions
Do not discharge into the drains/surface waters/groundwater. Do not discharge into the subsoil/soil.

6.3 Methods and material for containment and cleaning up
Ensure adequate ventilation. Pick up with absorbent material (e.g., sand, kieselguhr, acid binder, universal binder, sawdust). When collected, handle material as described under the section heading "Disposal considerations".

6.4 Reference to other sections
No data available.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Risks inherent to handling the product must be minimised by applying the appropriate protective and preventive measures. Working processes should - so far as possible, according to the state of the art - be designed to rule out bodily contact or the release of hazardous substances.

General protective and hygiene measures
Wash hands before breaks and after work. Do not eat, drink or smoke during work time. Keep away from foodstuffs and beverages. Avoid contact with eyes and skin. Remove soiled or soaked clothing immediately. Do not inhale gases/vapours/aerosols. Have emergency shower available. Provide eye wash fountain in work area.

Advice on protection against fire and explosion
No special measures necessary.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions
Keep container tightly closed in a cool, well-ventilated place.

Requirements for storage rooms and vessels
Keep only in the original container. Containers which are opened must be carefully closed and kept upright to prevent leakage.

Incompatible products
Do not store together with: explosive substances; Peroxides; oxidizing agents

7.3 Specific end use(s)

No data available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit values

No	Substance name	CAS no.		EC no.	
1	**ethanediol**	**107-21-1**		**203-473-3**	
	2000/39/EC				
	Ethylene glycol				
	WEL short-term (15 min reference period)	104	mg/m³	40	ppm
	WEL long-term (8-hr TWA reference period)	52	mg/m³	20	ppm
	Skin resorption / sensibilisation	Skin			
	List of approved workplace exposure limits (WELs) / EH40				
	Ethane-1,2-diol vapour				
	WEL short-term (15 min reference period)	104	mg/m³	40	ppm
	WEL long-term (8-hr TWA reference period)	52	mg/m³	20	ppm
	Comments	Sk			
	List of approved workplace exposure limits (WELs) / EH40				
	Ethane-1,2-diol particulate				
	WEL long-term (8-hr TWA reference period)	10	mg/m³		
	Comments	Sk			
2	**sulphuric acid**	**7664-93-9**		**231-639-5**	
	2009/161/EU				
	sulphuric acid (mist)				
	Mist				
	WEL long-term (8-hr TWA reference period)	0.05	mg/m³		
	List of approved workplace exposure limits (WELs) / EH40				
	Sulphuric acid mist				
	WEL long-term (8-hr TWA reference period)	0.05	mg/m³		
	Comments	The mist is defined as the thoracic fraction			

DNEL, DMEL and PNEC values

DNEL values (worker)

No	Substance name			CAS / EC no	
	Route of exposure	Exposure time	Effect	Value	
1	**ethanediol**			**107-21-1** **203-473-3**	
	dermal	Long term (chronic)	systemic	106	mg/kg/day
	inhalative	Long term (chronic)	local	35	mg/m³
2	**sulphuric acid**			**7664-93-9** **231-639-5**	
	inhalative	Long term (chronic)	local	0.05	mg/m³
	inhalative	Short term (acut)	local	0.1	mg/m³

DNEL value (consumer)

No	Substance name			CAS / EC no	
	Route of exposure	Exposure time	Effect	Value	
1	**ethanediol**			**107-21-1** **203-473-3**	
	dermal	Long term (chronic)	systemic	53	mg/kg/day
	inhalative	Long term (chronic)	local	7	mg/m³

PNEC values

No	Substance name		CAS / EC no	
	ecological compartment	Type	Value	
1	**ethanediol**		**107-21-1** **203-473-3**	
	water	fresh water	10	mg/L
	water	marine water	1	mg/L
	water	Aqua intermittent	10	mg/L
	water	fresh water sediment	37	mg/kg dry weight
	water	marine water sediment	3.7	mg/kg dry weight
	soil	-	1.53	mg/kg dry weight
	sewage treatment plant	-	199.5	mg/L
2	**sulphuric acid**		**7664-93-9** **231-639-5**	
	water	fresh water	0.0025	mg/L
	water	marine water	0.00025	mg/L
	water	fresh water sediment	0.002	mg/kg
	water	marine water sediment	0.002	mg/kg
	sewage treatment plant	-	8.8	mg/L

8.2 Exposure controls

Appropriate engineering controls
No data available.

Personal protective equipment

Respiratory protection
If workplace exposure limits are exceeded, a respiration protection approved for this particular job must be worn. In case of aerosol and mist formation, take appropriate measures for breathing protection in the event workplace threshold values are not specified.

Eye / face protection
Safety glasses with side protection shield (EN 166)

Hand protection
Sufficient protection is given wearing suitable protective gloves checked according to i.e. EN 374, in the event of risk of skin contact with the product. Check in any case suitability of protective glove for the specific workplace conditions

(e.g. mechanical resistance, product compatibility, antistatic properties). Adhere to the manufacturer's instructions and information relating to the use, storage, care and replacement of protective gloves. Replace immediately protective gloves if worn or damaged. Make sure that operations are designed so that it is not necessary to wear continuously protective gloves.

Other
Normal chemical work clothing.

Environmental exposure controls
No data available.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form/Colour
liquid
colourless

Odour
slightly sweetish

Odour threshold
No data available

pH value			
Value	<	1	
Reference temperature		20	°C
Concentration		100	%

Boiling point / boiling range
No data available

Melting point/freezing point
No data available

Decomposition temperature
No data available

Flash point		
Value	101	°C

Auto-ignition temperature
No data available

Oxidising properties
No data available

Explosive properties
No data available

Flammability
No data available

Lower explosion limit
No data available

Upper explosion limit
No data available

Vapour pressure
No data available

Relative vapour density
No data available

Evaporation rate
No data available

Relative density
No data available

Density		
Value	1.175	g/cm³

Solubility in water		
Reference temperature	20	°C
Comments	Completely miscible	

Solubility
No data available

Partition coefficient n-octanol/water (log value)			
No	**Substance name**	**CAS no.**	**EC no.**
1	**ethanediol**	**107-21-1**	**203-473-3**
log Pow		-1.36	
Reference temperature		25	°C
Source	ECHA		

Viscosity		
Value	19.035	mPa*s
Type	dynamic	
Value	16.2	mm²/s
Reference temperature	20	°C
Type	kinematic	

9.2 Other information

Other information
No data available.

SECTION 10: Stability and reactivity

10.1 Reactivity
Dangerous reactions are not expected if the product is handled according to its intended use.

10.2 Chemical stability
Stable under recommended storage and handling conditions (See section 7).

10.3 Possibility of hazardous reactions
None, when used as directed.

10.4 Conditions to avoid
In case of addition of water warming up. If diluting put acid in water, not reverse. If diluting or dissolving in water always appears strong heating up. Reactions with alkalies and metals.

10.5 Incompatible materials
Metals; Water

10.6 Hazardous decomposition products
In case of fire the following can be released: Sulphurous oxides (SOx)

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute oral toxicity (result of the ATE calculation for the mixture)	
No	**Product Name**
1	**Wirolyt (REF 52460, 54920)**
ATE (Mixture)	554.94
Method	Calculation method according Regulation (EC) No 1272/2008, (CLP), annex I, part 3, section 3.1.3.6.

Acute oral toxicity

No	Substance name	CAS no.	EC no.
1	sulphuric acid	7664-93-9	231-639-5

LD50	2140		mg/kg bodyweight
Species	rat		
Method	OECD 401		
Source	ECHA		

Acute dermal toxicity

No data available

Acute inhalational toxicity

No data available

Skin corrosion/irritation

No data available

Serious eye damage/irritation

No data available

Respiratory or skin sensitisation

No	Substance name	CAS no.	EC no.
1	ethanediol	107-21-1	203-473-3

Route of exposure	Skin
Species	guinea pig
Source	ECHA
Evaluation	non-sensitizing

Germ cell mutagenicity

No	Substance name	CAS no.	EC no.
1	ethanediol	107-21-1	203-473-3

Type of examination	Bacterial Reverse Mutation Test
Species	Salmonella typhimurium: TA 1535, TA 1537, TA 98, TA 100; Escherichia coli WP2 uvrA
Method	OECD 471
Source	ECHA
Evaluation/classification	Based on available data, the classification criteria are not met.

Reproduction toxicity

No	Substance name	CAS no.	EC no.
1	ethanediol	107-21-1	203-473-3

Source	ECHA
Evaluation/classification	Based on available data, the classification criteria are not met.

2	sulphuric acid	7664-93-9	231-639-5
Route of exposure	inhalational		
NOAEC	19.3		mg/m³
Duration of exposure	18		day(s)
Species	rabbit		
Method	OECD 414		
Source	ECHA		
Evaluation/classification	Based on available data, the classification criteria are not met.		

Carcinogenicity

No	Substance name	CAS no.	EC no.
1	ethanediol	107-21-1	203-473-3

Source	ECHA
Evaluation/classification	Based on available data, the classification criteria are not met.

STOT - single exposure

No data available

STOT - repeated exposure

No	Substance name	CAS no.	EC no.
1	ethanediol	107-21-1	203-473-3

Route of exposure	oral

NOAEL		150	mg/kg bw/d
Duration of exposure		12	months
Species	rat		
Target organ	kidneys		
Method	OECD 452		
Source	ECHA		
Evaluation/classification	Based on available data, the classification criteria are met.		
2 sulphuric acid	**7664-93-9**		**231-639-5**
Route of exposure	inhalational		
LOAEC		0.3	mg/m³
Duration of exposure		28	day(s)
Species	rat		
Method	OECD 412		
Source	ECHA		
Evaluation/classification	Based on available data, the classification criteria are not met.		

Aspiration hazard
No data available

Delayed and immediate effects as well as chronic effects from short and long-term exposure
Corrosive effect of product in contact with skin, eyes and mucous membranes. Harmful if swallowed.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish (acute)				
No	**Substance name**	**CAS no.**		**EC no.**
1	**ethanediol**	**107-21-1**		**203-473-3**
LC50	>	72860		mg/l
Duration of exposure		96		h
Species	Pimephales promelas			
Source	ECHA			
2	**sulphuric acid**	**7664-93-9**		**231-639-5**
LC50	16	-	28	mg/l
Duration of exposure			96	h
Species	Lepomis macrochirus			
Source	ECHA			

Toxicity to fish (chronic)			
No	**Substance name**	**CAS no.**	**EC no.**
1	**sulphuric acid**	**7664-93-9**	**231-639-5**
NOEC		0.025	mg/l
Duration of exposure		65	day(s)
Species	Jordanella floridae		
Source	ECHA		

Toxicity to Daphnia (acute)				
No	**Substance name**	**CAS no.**		**EC no.**
1	**ethanediol**	**107-21-1**		**203-473-3**
EC50	>	100		mg/l
Duration of exposure		48		h
Species	Daphnia magna			
Method	OECD 202			
Source	ECHA			
2	**sulphuric acid**	**7664-93-9**		**231-639-5**
EC50	>	100		mg/l
Duration of exposure		48		h
Species	Daphnia magna			
Method	OECD 202			
Source	ECHA			

Toxicity to Daphnia (chronic)

No	Substance name	CAS no.	EC no.
1	sulphuric acid	7664-93-9	231-639-5

NOEC		0.15	mg/l
Duration of exposure		35	day(s)
Species	T. dissimilis		
Source	ECHA		

Toxicity to algae (acute)

No	Substance name	CAS no.	EC no.
1	sulphuric acid	7664-93-9	231-639-5

EC50	>	100	mg/l
Duration of exposure		72	h
Species	Desmodesmus subspicatus		
Method	OECD 201		
Source	ECHA		

Toxicity to algae (chronic)

No data available

Bacteria toxicity

No data available

12.2 Persistence and degradability

Biodegradability

No	Substance name	CAS no.	EC no.
1	ethanediol	107-21-1	203-473-3

Type	DOC decrease			
Value	90	-	100	%
Duration			10	day(s)
Method	OECD 301 A			
Source	ECHA			
Evaluation	readily biodegradable			

12.3 Bioaccumulative potential

Partition coefficient n-octanol/water (log value)

No	Substance name	CAS no.	EC no.
1	ethanediol	107-21-1	203-473-3

log Pow		-1.36	
Reference temperature		25	°C
Source	ECHA		

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

Results of PBT and vPvB assessment

PBT assessment	No data available.
vPvB assessment	No data available.

12.6 Other adverse effects

No data available.

12.7 Other information

Other information

Do not discharge product unmonitored into the environment.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Allocation of a waste code number, according to the European Waste Catalogue, should be carried out in agreement with the regional waste disposal company.

Packaging
Residues must be removed from packaging and when emptied completely disposed of in accordance with the regulations for waste removal. Incompletely emptied packaging must be disposed of in the form of disposal specified by the regional disposer.

SECTION 14: Transport information

14.1 Transport ADR/RID/ADN

Class	8
Classification code	C1
Packing group	II
Hazard identification no.	80
UN number	UN2796
Proper shipping name	SULPHURIC ACID
Tunnel restriction code	E
Label	8

14.2 Transport IMDG

Class	8
Packing group	II
UN number	UN2796
Proper shipping name	SULPHURIC ACID
EmS	F-A, S-B
Label	8

14.3 Transport ICAO-TI / IATA

Class	8
Packing group	II
UN number	UN2796
Proper shipping name	Sulphuric acid
Label	8

14.4 Other information
No data available.

14.5 Environmental hazards
Information on environmental hazards, if relevant, please see 14.1 - 14.3.

14.6 Special precautions for user
No data available.

14.7 Maritime transport in bulk according to IMO instruments
Not relevant

SECTION 15: Regulatory information

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

EU regulations

Regulation (EC) No 1907/2006 (REACH) Annex XIV (List of substances subject to authorisation)
According to the data available and/or specifications supplied by upstream suppliers, this product does not contain any substances considered as substances requiring authorisation as listed on Annex XIV of the REACH regulation (EC) 1907/2006.

REACH candidate list of substances of very high concern (SVHC) for authorisation
According to available data and the information provided by preliminary suppliers, the product does not contain substances that are considered substances meeting the criteria for inclusion in annex XIV (List of Substances Subject to Authorisation) as laid down in Article 57 and article 59 of REACH (EC) 1907/2006.

Regulation (EC) No 1907/2006 (REACH) Annex XVII: RESTRICTIONS ON THE MANUFACTURE, PLACING ON THE MARKET AND USE OF CERTAIN DANGEROUS SUBSTANCES, MIXTURES AND ARTICLES	
The product is considered being subject to REACH regulation (EC) 1907/2006 annex	No 3

XVII.	

Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances
This product is not subject to Part 1 or 2 of Annex I.

Other regulations
Adhere to the national sanitary and occupational safety regulations when using this product.

15.2 Chemical safety assessment

No data available.

SECTION 16: Other information

Sources of key data used to compile the data sheet:
Regulation (EC) No 1907/2006 (REACH), 1272/2008 (CLP) as amended in each case.
Directives 2000/39/EC, 2006/15/EC, 2009/161/EU, (EU) 2017/164.
National Threshold Limit Values of the corresponding countries as amended in each case.
Transport regulations according to ADR, RID, IMDG, IATA as amended in each case.
The data sources used to determine physical, toxic and ecotoxic data, are indicated directly in the corresponding section.

Full text of the H- and EUH- phrases drawn up in sections 2 and 3 (provided not already drawn up in these sections)

H318	Causes serious eye damage.

Notes relating to the identification, classification and labelling of substances and mixtures ((EC) No 1272/2008, Annex VI)

B	Some substances (acids, bases, etc.) are placed on the market in aqueous solutions at various concentrations and, therefore, these solutions require different classification and labelling since the hazards vary at different concentrations. In Part 3 entries with Note B have a general designation of the following type: 'nitric acid … %'. In this case the supplier must state the percentage concentration of the solution on the label. Unless otherwise stated, it is assumed that the percentage concentration is calculated on a weight/weight basis.

Creation of the safety data sheet
UMCO GmbH - D-21107 Hamburg, Georg-Wilhelm-Strasse 187, Tel.: +49(40)555 546 300, Fax: +49(40)555 546 357, e-mail: umco@umco.de

This information is based on our present knowledge and experience.
The safety data sheet describes products with a view to safety requirements.
It does not however, constitute a guarantee for any specific product properties and shall not establish a legally valid contractual relationship.

Prod-ID 621403