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**Bizol Radiator Repair+ r71**

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

**1.1. Product identifier**

Bizol Radiator Repair+ r71

**Further trade names**

UFI: Y9E2-700N-G000-65MN

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

**Use of the substance/mixture**

Heat transfer fluids

**1.3. Details of the supplier of the safety data sheet**

Company name:	BIZOL Germany GmbH	
Street:	Martin-Buber-Str. 12	
Place:	D-14163 Berlin	
Telephone:	+49 (30) 804 869-0	Telefax: +49 (30) 804 869-2860
e-mail:	support@bizol.de	
Internet:	www.bizol.com	

**1.4. Emergency telephone number:**

Germany: +49 (30) 804 869-0 (08.00-17.00, Mo-Fr)  
In England and Wales: NHS Direct: 0845 4647 or 111 In Scotland: NHS 24 -  
08454 24 24 24 In Republic of Ireland: 01 809 2166

**SECTION 2: Hazards identification**

**2.1. Classification of the substance or mixture**

**GB CLP Regulation**

STOT RE 2; H373

Full text of hazard statements: see SECTION 16.

**2.2. Label elements**

**GB CLP Regulation**

**Hazard components for labelling**

ethanediol

**Signal word:** Warning

**Pictograms:**



**Hazard statements**

H373 May cause damage to organs through prolonged or repeated exposure.

**Precautionary statements**

P260 Do not breathe mist/vapours/spray.  
P501 Dispose of waste according to applicable legislation.

**2.3. Other hazards**

No further relevant information available.

**SECTION 3: Composition/information on ingredients**

**3.2. Mixtures**

**Chemical characterization**

Blend of the following materials with non-hazardous additives.

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**Hazardous components**

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (GB CLP Regulation)			
107-21-1	ethanediol			10 - < 25 %
	203-473-3	603-027-00-1	01-2119456816-28	
	Acute Tox. 4, STOT RE 2; H302 H373			
110-91-8	morpholine			< 2,5 %
	203-815-1	613-028-00-9	01-2119496057-30	
	Flam. Liq. 3, Acute Tox. 3, Acute Tox. 4, Skin Corr. 1A, Eye Dam. 1; H226 H331 H311 H302 H314 H318			

Full text of H and EUH statements: see section 16.

**Specific Conc. Limits, M-factors and ATE**

CAS No	EC No	Chemical name	Quantity
		Specific Conc. Limits, M-factors and ATE	
107-21-1	203-473-3	ethanediol	10 - < 25 %
		dermal: LD50 = 3500 mg/kg; oral: LD50 = 1600 mg/kg	
110-91-8	203-815-1	morpholine	< 2,5 %
		inhalation: LC50 = 8 mg/l (vapours); inhalation: ATE = 0,5 mg/l (dusts or mists); dermal: LD50 = ca. 500 mg/kg; oral: LD50 = ca. 1910 mg/kg	

**SECTION 4: First aid measures**

**4.1. Description of first aid measures**

**General information**

When in doubt or if symptoms are observed, get medical advice. If unconscious but breathing normally, place in recovery position and seek medical advice. Remove contaminated, saturated clothing immediately.

**After inhalation**

Remove casualty to fresh air and keep warm and at rest.

**After contact with skin**

After contact with skin, wash immediately with plenty of water and soap.

**After contact with eyes**

After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately.

**After ingestion**

If swallowed, rinse mouth with water (only if the person is conscious). Let water be drunken in little sips (dilution effect). Call a physician immediately. Do NOT induce vomiting.

**4.2. Most important symptoms and effects, both acute and delayed**

When in doubt or if symptoms are observed, get medical advice.

**4.3. Indication of any immediate medical attention and special treatment needed**

No information available.

**SECTION 5: Firefighting measures**

**5.1. Extinguishing media**

**Suitable extinguishing media**

alcohol resistant foam, Extinguishing powder, Carbon dioxide (CO<sub>2</sub>).

**Unsuitable extinguishing media**

Full water jet.

**5.2. Special hazards arising from the substance or mixture**

Hazardous decomposition products: Carbon monoxide Carbon dioxide (CO<sub>2</sub>). Do not inhale explosion and combustion gases.

**5.3. Advice for firefighters**

In case of fire: Wear self-contained breathing apparatus.

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**Additional information**

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water. Do not allow to enter into soil/subsoil.

**SECTION 6: Accidental release measures**

**6.1. Personal precautions, protective equipment and emergency procedures**

**General advice**

Protective measures: see section 7 + 8.

**6.2. Environmental precautions**

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil. Clean contaminated articles and floor according to the environmental legislation.

**6.3. Methods and material for containment and cleaning up**

**Other information**

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents). Treat the recovered material as prescribed in the section on waste disposal.

**6.4. Reference to other sections**

Protective measures: see section 7 + 8.

**SECTION 7: Handling and storage**

**7.1. Precautions for safe handling**

**Advice on safe handling**

Use personal protection equipment. Do not eat, drink or smoke when using this product. Provide fresh air. Handle and open container with care. Conditions to avoid: generation/formation of aerosols.

**Advice on protection against fire and explosion**

No special measures are necessary.

**Advice on general occupational hygiene**

When using do not eat, drink, smoke, sniff.

**7.2. Conditions for safe storage, including any incompatibilities**

**Requirements for storage rooms and vessels**

Protect against: Frost. Keep away from heat. Protect from direct sunlight. Keep container tightly closed in a cool, well-ventilated place.

**7.3. Specific end use(s)**

Observe technical data sheet.

**SECTION 8: Exposure controls/personal protection**

**8.1. Control parameters**

**Exposure limits (EH40)**

CAS No	Substance	ppm	mg/m <sup>3</sup>	fibres/ml	Category	Origin
107-21-1	Ethane-1,2-diol, vapour	20	52		TWA (8 h)	WEL
		40	104		STEL (15 min)	WEL
110-91-8	Morpholine	10	36		TWA (8 h)	WEL
		20	72		STEL (15 min)	WEL

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**DNEL/DMEL values**

CAS No	Substance		
DNEL type	Exposure route	Effect	Value
107-21-1	ethanediol		
Worker DNEL, long-term	inhalation	local	35 mg/m <sup>3</sup>
Consumer DNEL, long-term	inhalation	local	7 mg/m <sup>3</sup>
Consumer DNEL, long-term	dermal	systemic	53 mg/kg bw/day
Worker DNEL, long-term	dermal	systemic	106 mg/kg bw/day

**PNEC values**

CAS No	Substance	
Environmental compartment	Value	
107-21-1	ethanediol	
Freshwater	10 mg/l	
Marine water	1 mg/l	
Freshwater sediment	20,9 mg/kg	
Micro-organisms in sewage treatment plants (STP)	199,5 mg/l	
Soil	1,53 mg/kg	

**Additional advice on limit values**

- a no restriction
- b End of exposure or end of shift
- c at long-term exposure:
- d before next shift

Y: A risk of reproductive effects needs not to be feared if the occupational exposure limit value (AGW) and the biological limit value (BGW) is kept

Z: A risk of reproductive effects cannot to be excluded if the occupational exposure limit value (AGW) and the biological limit value (BGW) is kept

blood (B)

Urine (U)

**8.2. Exposure controls**

**Appropriate engineering controls**

See section 7. No additional measures necessary.

**Individual protection measures, such as personal protective equipment**

**Eye/face protection**

Eye glasses with side protection.

**Hand protection**

Wear suitable gloves. Recommended glove articles: EN ISO 374. Suitable material: NBR (Nitrile rubber). Breakthrough time: > 480 min (Thickness of the glove material: 0.4 mm). Breakthrough times and swelling properties of the material must be taken into consideration. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. Barrier creams can help protecting exposed skin areas. In no case should they be used after contact.

**Skin protection**

Protective clothing.

**Respiratory protection**

With correct and proper use, and under normal conditions, breathing protection is not required. When splashes or fine mist form, a permitted breathing apparatus suitable for these purposes must be used. Suitable respiratory protection apparatus: Filtering Half-face mask (EN 149), e.g. FFA P / FFP3.

**Environmental exposure controls**

Do not allow to enter into surface water or drains.

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**SECTION 9: Physical and chemical properties**

**9.1. Information on basic physical and chemical properties**

Physical state:	Liquid
Colour:	green
Odour:	characteristic

**Test method**

**Changes in the physical state**

Melting point/freezing point:	not determined
Boiling point or initial boiling point and boiling range:	not determined
Pour point:	not applicable
Flash point:	> 100 °C
Lower explosion limits:	not applicable
Upper explosion limits:	not applicable
Auto-ignition temperature:	not determined
Decomposition temperature:	No information available.
pH-Value:	not applicable
Viscosity / dynamic:	not determined
Viscosity / kinematic:	not determined
Flow time:	not determined
Water solubility:	miscible
Partition coefficient n-octanol/water:	not determined
Vapour pressure:	not determined
Density (at 20 °C):	1,02 g/cm <sup>3</sup> DIN 51757
Relative vapour density:	not determined

**9.2. Other information**

**Other safety characteristics**

Evaporation rate: not determined

**Further Information**

No information available.

**SECTION 10: Stability and reactivity**

**10.1. Reactivity**

No information available.

**10.2. Chemical stability**

No information available.

**10.3. Possibility of hazardous reactions**

No hazardous reaction when handled and stored according to provisions.

**10.4. Conditions to avoid**

Heat.

**10.5. Incompatible materials**

No information available.

**10.6. Hazardous decomposition products**

No information available.

**SECTION 11: Toxicological information**

**11.1. Information on hazard classes as defined in GB CLP Regulation**

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**Acute toxicity**

Based on available data, the classification criteria are not met.

CAS No	Chemical name					
	Exposure route	Dose		Species	Source	Method
107-21-1	ethanediol					
	oral	LD50 mg/kg	1600		Practical experience/human evidence	
	dermal	LD50 mg/kg	3500	Mouse		
110-91-8	morpholine					
	oral	LD50 mg/kg	ca. 1910	Rat		
	dermal	LD50 mg/kg	ca. 500	Rabbit		
	inhalation vapour	LC50	8 mg/l	Rat		
	inhalation dust/mist	ATE	0,5 mg/l			

**Irritation and corrosivity**

Based on available data, the classification criteria are not met.

**Sensitising effects**

Based on available data, the classification criteria are not met.

**Carcinogenic/mutagenic/toxic effects for reproduction**

Based on available data, the classification criteria are not met.

**STOT-single exposure**

Based on available data, the classification criteria are not met.

**STOT-repeated exposure**

May cause damage to organs through prolonged or repeated exposure. (ethanediol)

**Aspiration hazard**

Based on available data, the classification criteria are not met.

**11.2. Information on other hazards**

**Other information**

Keeping to the general worker's protection rules and the industrial hygienics, there is no risk in handling this product through the personnel.

**SECTION 12: Ecological information**

**12.1. Toxicity**

There are no data available on the mixture itself.

CAS No	Chemical name						
	Aquatic toxicity	Dose		[h]   [d]	Species	Source	Method
107-21-1	ethanediol						
	Acute fish toxicity	LC50 mg/l	72860	96 h	Pimephales promelas (fathead minnow)		
	Acute algae toxicity	ErC50 13000 mg/l	6500-	96 h	Selenastrum capricornutum		
	Acute crustacea toxicity	EC50 mg/l	> 100	48 h	Daphnia magna (Big water flea)		
	Fish toxicity	NOEC mg/l	15380	7 d	Pimephales promelas (fathead minnow)		
	Crustacea toxicity	NOEC mg/l	8590	7 d	Ceriodaphnia Dubia		

**12.2. Persistence and degradability**

There are no data available on the mixture itself.

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CAS No	Chemical name			
	Method	Value	d	Source
	Evaluation			
107-21-1	ethanediol			
	Biodegradation	90-100	10	
	OECD 301A/ ISO 7827/ EEC 92/69/V, C.4-A			

**12.3. Bioaccumulative potential**

There are no data available on the mixture itself.

**Partition coefficient n-octanol/water**

CAS No	Chemical name	Log Pow
107-21-1	ethanediol	-1,36

**12.4. Mobility in soil**

No data available

**12.5. Results of PBT and vPvB assessment**

The substances in the mixture do not meet the PBT/vPvB criteria according to UK REACH.

**12.6. Endocrine disrupting properties**

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

**12.7. Other adverse effects**

No data available

**SECTION 13: Disposal considerations**

**13.1. Waste treatment methods**

**Disposal recommendations**

Do not allow to enter into surface water or drains. This material and its container must be disposed of in a safe way. Waste disposal according to EC directives 75/442/EEC and 91/689/EEC in the corresponding versions, covering waste and dangerous waste.

**List of Wastes Code - residues/unused products**

070701 WASTES FROM ORGANIC CHEMICAL PROCESSES; wastes from the MFSU of fine chemicals and chemical products not otherwise specified; aqueous washing liquids and mother liquors; hazardous waste

**Contaminated packaging**

Non-contaminated packages may be recycled. Consult the appropriate local waste disposal expert about waste disposal.

**SECTION 14: Transport information**

**Land transport (ADR/RID)**

- 14.1. UN number or ID number:** No dangerous good in sense of this transport regulation.
- 14.2. UN proper shipping name:** No dangerous good in sense of this transport regulation.
- 14.3. Transport hazard class(es):** No dangerous good in sense of this transport regulation.
- 14.4. Packing group:** No dangerous good in sense of this transport regulation.

**Marine transport (IMDG)**

- 14.1. UN number or ID number:** No dangerous good in sense of this transport regulation.
  - 14.2. UN proper shipping name:** No dangerous good in sense of this transport regulation.
  - 14.3. Transport hazard class(es):** No dangerous good in sense of this transport regulation.
  - 14.4. Packing group:** No dangerous good in sense of this transport regulation.
- Marine pollutant: NO

**Air transport (ICAO-TI/IATA-DGR)**

- 14.1. UN number or ID number:** No dangerous good in sense of this transport regulation.
- 14.2. UN proper shipping name:** No dangerous good in sense of this transport regulation.
- 14.3. Transport hazard class(es):** No dangerous good in sense of this transport regulation.
- 14.4. Packing group:** No dangerous good in sense of this transport regulation.

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**14.5. Environmental hazards**

ENVIRONMENTALLY HAZARDOUS: No

**14.6. Special precautions for user**

No data available

**14.7. Maritime transport in bulk according to IMO instruments**

No data available

**SECTION 15: Regulatory information**

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

**EU regulatory information**

Restrictions on use (REACH, annex XVII):

Entry 3, Entry 75

2010/75/EU (VOC): 0 %

Information according to 2012/18/EU (SEVESO III): Not subject to 2012/18/EU (SEVESO III)

**National regulatory information**

Water hazard class (D): 1 - slightly hazardous to water

**15.2. Chemical safety assessment**

Chemical safety assessments for substances in this mixture were not carried out.

**SECTION 16: Other information**

**Changes**

This data sheet contains changes from the previous version in section(s): 1,2,9,15.

**Abbreviations and acronyms**

- ADR: Accord relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road)
- RID: Règlement concernant le transport international ferroviaire des marchandises dangereuses (Regulations concerning the International Carriage of Dangerous Goods by Rail)
- IMDG: International Maritime Code for Dangerous Goods
- IATA: International Air Transport Association
- ICAO: International Civil Aviation Organization
- CAS: Chemical Abstracts Service (a division of the American Chemical Society)
- DNEL/DMEL: Derived No-Effect Level / Derived Minimal Effect Level
- PNEC: Predicted No Effect Concentration
- WEL (UK): Workplace Exposure Limits
- TWA (EC): Time-Weighted Average
- STEL (EC): Short Term Exposure Limit
- ATE: Acute Toxicity Estimate
- LD50: Lethal Dose, 50% (median lethal dose)
- LC50: Lethal Concentration, 50% (median lethal concentration)
- EC50: half maximal Effective Concentration
- ErC50: EC50 in terms of reduction of growth rate
- AwSV: Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen

**Classification for mixtures and used evaluation method according to GB CLP Regulation**

Classification	Classification procedure
STOT RE 2; H373	Calculation method

**Relevant H and EUH statements (number and full text)**

- H226 Flammable liquid and vapour.
- H302 Harmful if swallowed.
- H311 Toxic in contact with skin.
- H314 Causes severe skin burns and eye damage.
- H318 Causes serious eye damage.
- H331 Toxic if inhaled.
- H373 May cause damage to kidneys through prolonged or repeated exposure if swallowed.



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H373 May cause damage to organs through prolonged or repeated exposure.

**Further Information**

Safety Data Sheet according to COMMISSION REGULATION (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). -----

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The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

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*(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)*