

Kimya Resin Arak

Chemical Industrial Co.

MATERIAL SAFETY DATA SHEET

Antifreeze

Tel: (+98) 86-3422-4515
(Company)

Tel: (+98) 86-3823-2049
(Factory)

1. Identification

Trade name	Ghoshalan Antifreeze
Synonyms	Antifreeze liquid/ Corrosion inhibitor/ Antifreeze/coolant
Use	Automotive
Company	Kimya Resin Arak Company
Address	Unit 19, 7th Floor, Edge Of Daneshsara Alley, Shariati Sq., Arak, Iran.
Telephone	+98 86 34224514-15 & +98 86 34224864
E-mail	info@kimyaresin-arak.com
Factory Address	Shazand Industrial Zone (Shahid Babaei), Shazand, Iran.
Tel	+98 86 38232049 & +98 86 38232162
Email	sales@kimyaresin-arak.com

2. Hazard (s) identification

Classification of the substance or mixture

Acute toxicity, Category 4 (Oral)

Harmful if swallowed.

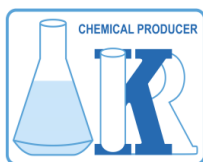
Specific target organ toxicity – repeated
or Exposure Category 2

May cause damage to organs through prolonged
repeated exposure.

Label elements

Hazard pictograms





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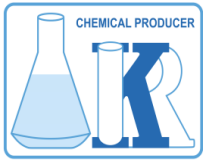
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Signal word	Warning
Hazard statements	
H302	Harmful if swallowed.
H373	May cause damage to organs through prolonged or repeated exposure.
Precautionary statements	
P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.
P103	Read label before use.
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves and clothing.
P301 + P312	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwe
P308 + P313	IF exposed or concerned: Get medical advice/attention.
P314	Get medical advice/ attention if you feel unwell.
P330	Rinse mouth.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.
Other hazard information: Physical / Chemical Hazards	No significant hazards.



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Environmental Hazards No significant hazards.

Health Hazards: High-pressure injection under skin may cause serious damage. Ingestion may cause serious adverse effects and may be fatal. May cause kidney failure and central nervous system effects. Prolonged exposure to elevated concentrations of mist or liquid may cause irritation of the skin, eyes, and respiratory tract.

3. Composition/information on ingredients

This material is defined as a mixture.

Chemical name	CAS no.	Weight%
Ethylene glycol	107-21-1	Up to 95
Proprietary inhibitors	Proprietary	Proprietary
Potassium hydroxide	1310-58-3	Proprietary

If Chemical Name/CAS No is "proprietary" and/or Weight-% is listed as a range, the specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Description of first aid measures

General advice

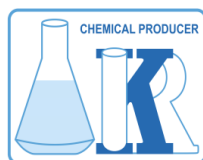
If this product comes in contact with the eyes:

Eye

- Wash out immediately with fresh running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- Seek medical attention without delay; if pain persists or recurs seek medical attention.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

Skin contact If skin contact occurs:

- Immediately remove all contaminated clothing, including footwear.
- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.



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Inhalation

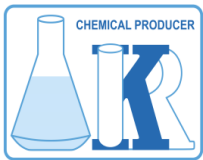
- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary
- Transport to hospital, or doctor.

Ingestion

- If swallowed do NOT induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- Observe the patient carefully.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.
- Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
- Seek medical advice.
- Avoid giving milk or oils.
- Avoid giving alcohol.
- If spontaneous vomiting appears imminent or occurs, hold patient's head down, lower than their hips to help avoid possible aspiration of vomitus.

Indication of any immediate medical attention and special treatment needed.

Any material aspirated during vomiting may produce lung injury. Therefore emesis should not be induced mechanically or pharmacologically. Mechanical means should be used if it is considered necessary to evacuate the stomach contents; these include gastric lavage after endotracheal intubation. If spontaneous vomiting has occurred after ingestion, the patient should be monitored for difficult breathing, as adverse effects of aspiration into the lungs may be delayed up to 48 hours. Treat symptomatically.



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- Polyethylene glycols are generally poorly absorbed orally and are mostly unchanged by the kidney.
- Dermal absorption can occur across damaged skin (e.g. through burns) leading to increased osmolality, anion gap metabolic acidosis, elevated calcium, low ionized calcium, CNS depression and renal failure.
- Treatment consists of supportive care to treat poisoning by the higher aliphatic alcohols (up to C7):
- Gastric lavage with copious amounts of water.
- It may be beneficial to instill 60 ml of mineral oil into the stomach.
- Oxygen and artificial respiration as needed.
- Electrolyte balance: it may be useful to start 500 ml. M/6 sodium bicarbonate intravenously but maintain a cautious and conservative attitude toward electrolyte replacement unless shock or severe acidosis threatens.
- To protect the liver, maintain carbohydrate intake by intravenous infusions of glucose.
- Haemodialysis if coma is deep and persistent.

5. Firefighting measures

Extinguishing media

The product contains a substantial proportion of water, therefore there are no restrictions on the type of extinguishing media which may be used. Choice of extinguishing media should take into account surrounding areas.

Though the material is non-combustible, evaporation of water from the mixture, caused by the heat of nearby fire, may produce floating layers of combustible substances.

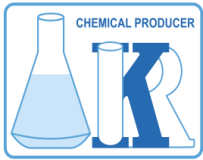
In such an event consider:

- foam.
- dry chemical powder.
- carbon dioxide

Advice for firefighters

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves in the event of a fire.
- Prevent, by any means available, spillage from entering drains or water courses.
- Use fire fighting procedures suitable for surrounding area.
- DO NOT approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

Fire Fighting



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Fire/Explosion Hazard

Slippery when spilt.

Minor Spills

- Clean up all spills immediately.
- Avoid breathing vapors and contact with skin and eyes.
- Control personal contact with the substance, by using protective equipment.
- Contain and absorb spill with sand, earth, inert material or vermiculite.
- Wipe up.
- Place in a suitable, labelled container for waste disposal.

Major Spills

Slippery when spilt.

Moderate hazard.

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water course.
- Stop leak if safe to do so.
- Contain spill with sand, earth or vermiculite.
- Collect recoverable product into labelled containers for recycling.
- Neutralize/decontaminate residue (see Section 13 for specific agent).
- Collect solid residues and seal in labelled drums for disposal.
- Wash area and prevent runoff into drains.
- After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.
- If contamination of drains or waterways occurs, advise emergency services.



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6. Handling and storage

- DO NOT allow clothing wet with material to stay in contact with skin.
- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs

Safe handling

- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps. DO NOT enter confined spaces until atmosphere has been checked.
- DO NOT allow material to contact humans, exposed food or food utensils.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately. Launder contaminated clothing before re-use.
- Use good occupational work practice.
- Observe manufacturer's storage and handling recommendations contained within this SDS.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained

Safe handling

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storage and handling recommendations contained within this SDS.

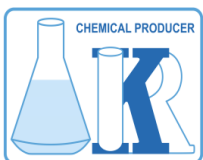
Other information

Conditions for safe storage, including any incompatibilities

Suitable container

- DO NOT use aluminium or galvanised containers
- Polyethylene or polypropylene container.
- Packing as recommended by manufacturer.
- Check all containers are clearly labelled and free

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Storage incompatibility

Alcohols

- Are incompatible with strong acids, acid chlorides, acid anhydrides, oxidizing and reducing agents.
- Reacts, possibly violently, with alkaline metals and alkaline earth metals to produce hydrogen.
- React with strong acids, strong caustics, aliphatic amines, isocyanates, acetaldehyde, benzoyl peroxide, chromic acid, chromium oxide, dialkylzincs, dichlorine oxide, ethylene oxide, hypochlorous acid, isopropyl chlorocarbonate, lithium tetrahydroaluminate, nitrogen dioxide, pentafluoroguanidine, phosphorus halides, phosphorus pentasulfide, tangerine oil, triethylaluminium, triisobutylaluminium
- Should not be heated above 49 °C. when in contact with aluminium equipment

Ethylene glycol

- Reacts violently with oxidisers and oxidising acids, sulfuric acid, chlorosulfonic acid, chromyl chloride, perchloric acid.
- Forms explosive mixtures with sodium perchlorate.
- Is incompatible with strong acids, caustics, aliphatic amines, isocyanates, chlorosulfonic acid, oleum, potassium bichromate, phosphorus pentasulfide, sodium chlorite.
- Avoid strong acids, bases

7. Exposure controls/personal protection

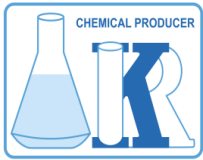
Exposure controls

Protective equipment



Process conditions

Use engineering controls to reduce air contamination to permissible exposure level. Provide eyewash



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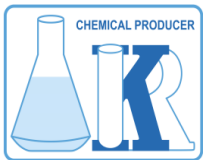
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Engineering measures	Provide adequate ventilation, including appropriate local extraction, to ensure that the defined occupational exposure limit is not exceeded.
Respiratory equipment	Protective gloves and goggles must be used if there is a risk of direct contact or splash.
Hand protection	Wear tight-fitting goggles or face shield.
Eye protection	Wear appropriate clothing to prevent any possibility of liquid contact and repeated or prolonged vapor
Other Protection	Wash contaminated clothing before reuse. Wash hands at the end of each work shift and before eating, smoking and using the toilet.
Hygiene measures	
Skin protection	Wear apron or protective clothing in case of contact

8. Physical and chemical properties

Information on basic physical and chemical properties

Physical state	liquid	Form	liquid
Color	Gold, Green, Blue, Red, Yellow	Odor	odorless
Odor Threshold	25 ppm	pH	7.5-11
Melting point	-39 °C/228 °F	Boiling point	109 °C/228 °F
Flash point	> 120 °C	Evaporation rate	No data available
Flammability (solid, gas)	n/a-liquid	Lower explosion limit	3.2 %(V)
		Upper explosion limit	15.3 %(V)
Vapor pressure	0.05 kPa; 20 °C	Relative vapor density	2.14
Density	1.115-1.133 g/cm ³ ; 20 °C		
Water solubility	completely miscible; 20 °C		
Partition coefficient	No data available	Viscosity	21 cp. ; 20 °C
Auto-ignition temperature	398 °C / 748 °F		
Oxidizing properties	See Hazards Identification Section		



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9. Stability and reactivity

Reactivity

See section 7

Chemical stability

- Unstable in the presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerization will not occur.

Possibility of hazardous reactions

See section 7

Conditions to avoid

See section 7

Incompatible materials

See section 7

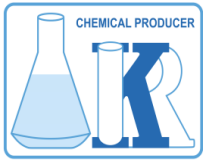
Hazardous decomposition products

See section 5

10. Toxicological information

Inhaled

Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by narcosis, reduced alertness, loss of reflexes, lack of coordination and vertigo. Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual. Exposure to aliphatic alcohols with more than 3 carbons may produce central nervous system effects such as headache, dizziness, drowsiness, muscle weakness, delirium, CNS depression, coma, seizure, and neurobehavioural changes. Symptoms are more acute with higher alcohols. Respiratory tract involvement may produce irritation of the mucosa, respiratory insufficiency, respiratory depression secondary to CNS depression, pulmonary oedema, chemical pneumonitis and bronchitis. Cardiovascular involvement may result in arrhythmias and hypotension. Gastrointestinal effects may include nausea and vomiting. Kidney and liver damage may result following massive exposures. The alcohols are potential irritants being, generally, stronger irritants than similar organic structures that lack functional groups (e.g. alkanes) but are much less irritating than the corresponding amines, aldehydes or ketones. Alcohols and glycols (diols) rarely represent serious hazards in the workplace, because their vapour concentrations are usually less than the levels which produce significant irritation which, in turn, produce significant central nervous system effects as well.



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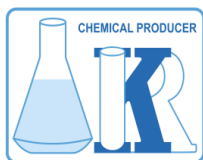
Repeated exposure may cause skin cracking, flaking or drying following normal handling and use. Most liquid alcohols appear to act as primary skin irritants in humans. Significant percutaneous absorption occurs in rabbits but not apparently in man. The material may produce mild skin irritation; limited evidence or practical experience suggests, that the material either: produces mild inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant, but mild, inflammation when applied to the healthy intact skin of animals (for up to four hours), such inflammation being present twenty-four hours or more after the end of the exposure period. Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (non allergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis.

Skin Contact

At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis. Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected

Ingestion

Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual. Swallowing of the liquid may cause aspiration of vomit into the lungs with the risk of haemorrhaging, pulmonary oedema, progressing to chemical pneumonitis; serious consequences may result. Signs and symptoms of chemical (aspiration) pneumonitis may include coughing, gasping, choking, burning of the mouth, difficult breathing, and bluish coloured skin (cyanosis). The toxic effects of glycols (dihydric alcohols), following ingestion are similar to those of alcohol, with depression of the central nervous system (CNS), nausea, vomiting and degenerative changes in liver and kidney. Effects on the nervous system characterise over-exposure to higher aliphatic alcohols. These include headache, muscle weakness, giddiness, ataxia, (loss of muscle coordination), confusion, delirium and coma. Gastrointestinal effects may include nausea, vomiting and diarrhoea. In the absence of effective treatment, respiratory arrest is the most common cause of death in animals acutely poisoned by the higher alcohols. Aspiration of liquid alcohols produces an especially toxic response as they are able to penetrate deeply in the lung where they are absorbed and may produce pulmonary injury. Those possessing



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Primary alcohols are metabolised to corresponding aldehydes and acids; a significant metabolic acidosis may occur. Secondary alcohols are converted to ketones, which are also central nervous system depressants and which, in the case of the higher homologues persist in the blood for many hours. Tertiary alcohols are metabolised slowly and incompletely so their toxic effects are generally persistent. for ethylene glycol:



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Eye

Limited evidence or practical experience suggests, that the material may cause moderate eye irritation in a substantial number of individuals and/or may produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals. Repeated or prolonged exposure may cause moderate inflammation (similar to windburn) characterised by a temporary redness of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.

11. Ecological information

Ecotoxicity

The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Toxicity

LC 50, 96 Hrs, Fish mg/l 22810 mg/l
Acute Toxicity - Fish
Not available.
EC 50, 48 Hrs, Daphnia, mg/l 41000 mg/l
Acute Toxicity - Aquatic Invertebrates
Not available.

Persistence and degradability

Degradability

The product is expected to be biodegradable.

Bioaccumulative potential

Bioaccumulative potential

The product is not bioaccumulating.

Partition coefficient

Scientifically unjustified.

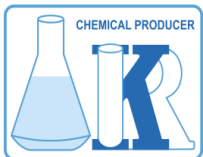
Mobility in soil

Mobility

The product is soluble in water.

Adsorption/Desorption

Not available.



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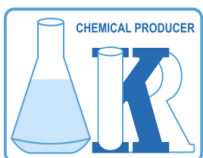
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12. Disposal consideration

Product / Packaging disposal

- Containers may still present a chemical hazard/ danger when empty.
- Return to supplier for reuse/ recycling if possible.
- Otherwise:
 - If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.
 - Where possible retain label warnings and SDS and observe all notices pertaining to the product.
Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.
A Hierarchy of Controls seems to be common - the user should investigate:
 - Reduction
 - Reuse
 - Recycling
 - Disposal (if all else fails)
This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.
- DO NOT allow wash water from cleaning or process equipment to enter drains.
- It may be necessary to collect all wash water for treatment before disposal.
- In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
- Where in doubt contact the responsible authority.
- Recycle wherever possible.
- Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.
- Dispose of by: burial in a land-fill specifically licensed to accept chemical and / or pharmaceutical wastes or incineration in a licensed apparatus (after admixture with suitable combustible material).
- Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.



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13. Transport information

DOT Shipping Description: Proprietary antifreeze preparation in non-bulk packaging; not regulated for transport under 49 CFR.

Additional Information: Bulk shipments containing a reportable quantity (RQ, 5000 pounds or more) of ethylene glycol in a single packaging are transported as hazardous material. The shipping description is: UN3082, environmentally hazardous substance, liquid, N.O.S. (ethylene glycol contains bitterant, 9, III, RQ (ethylene glycol))

IMO/IMDG Shipping Description: Not regulated as dangerous goods for transport under the IMDG code.

ICAO/IATA Shipping Description: Not regulated as dangerous goods for transport under the ICAO

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code:

Not applicable

14. Regulatory information

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

UK Regulatory References

The Control of Substances Hazardous to Health Regulations 2002 (S.I 2002 No. 2677) with amendments. Chemicals (Hazard Information & Packaging) Regulations.

EU Legislation

Dangerous Substance Directive 67/548/EEC. Dangerous Preparations Directive 1999/45/EC. System of specific

information relating to Dangerous Preparations. 2001/58/EC.

Chemical Safety Assessment

No chemical safety assessment has been carried out.

15. Other information

NFPA Hazards

Health Hazards

Flammability

Instability

Special

1

1

0

Not determined

HMIS

Health Hazards

Flammability

Physical Hazards

Personal Protection

Not determined

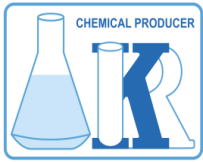
Not determined

Not determined

Not determined

Disclaimer

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MATERIAL SAFETY DATA SHEET

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Definitions and abbreviations

PC—TWA: Permissible Concentration-Time Weighted Average

PC—STEL: Permissible Concentration-Short Term Exposure Limit

IARC: International Agency for Research on Cancer

ACGIH: American Conference of Governmental Industrial Hygienists

STEL: Short Term Exposure Limit

TEEL: Temporary Emergency Exposure Limit.

IDLH: Immediately Dangerous to Life or Health Concentrations

OSF: Odour Safety Factor

NOAEL: No Observed Adverse Effect Level

LOAEL: Lowest Observed Adverse Effect Level

TLV: Threshold Limit Value

LOD: Limit Of Detection

OTV: Odour Threshold Value

BCF: BioConcentration Factors

BEI: Biological Exposure Index

End of MSDS