

according to Regulation (EG) No. 1907/2006

1. IDENTIFICATION OF THE MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Trade Name:

VAICO VA-013

VAICO No.:

V60-0164, V60-0165, V60-066, V60-0167, V60-0168

1.2. Informing department

VIEROL AG | Karlstraße 19 | 26123 Oldenburg | Germany

Telefon +49 441 - 210 20-0 | Telefax +49 441 - 210 20-111

1.3. Emergency telephone number

0049 (0)551/ 19240 – Gift-Informationszentrum Nord (Göttingen)

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

2.1.1. DSD/DPD CLASSIFICATION:

Xn; R22 I

2.2. Label elements

Under the criteria of Directive 1999/45/EC (dangerous preparations):

- contains: Ethylene glycol

2.3. Symbols:

Xn Harmful

R22 Harmful if swallowed.

S2 Keep out of the reach of children.

S46 If swallowed, seek medical advice immediately and show this container or label.

3. COMPOSITION / INFORMATION ON INGREDIENTS

3.1. Mixtures

This material is a mixture.

COMPONENTS	EC NUMBER	SYMBOL / RISK PHRASES	AMOUNT
<i>Ethylene glycol</i>	203-473-3	Xn/R22	60-100 % weight
<i>Glycerol</i>	200-289-5	None	10-30 % weight
<i>Sodium 2-ethylhexanoate</i>	243-283-8	Xn/Repro. Cat. 3/R63	1-4.99 % weight

The full text of all R-phrases is shown in Section 16. This product contains a bittering agent.

COMPONENTS	CAS NUMBER	EC NUMBER	REGISTRATION NUMBER	CLP CLASSIFICATION	AMOUNT
<i>Ethylene glycol</i>	107-21-1	203-473-3	01-2119456816-2	Acute Tox. 4/H302; STOT RE 2/H373	60-100 % weight
<i>Glycerol</i>	56-81-5	200-289-5	**	None	10-30 % weight
<i>Sodium ethylhexanoate</i>	2-19766-89-3	243-283-8	**	Repr. 2/H361d	1-4.99 % weight

The full text of all CLP H-statements is shown in Section 16.

** Not available or substance is not currently required for registration under REACH.

4. FIRST AID MEASURES

4.1. Description of first aid measures

4.1.1. Eye:

No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.

4.1.2. Skin:

No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

4.1.3. Ingestion:

If swallowed, get medical attention. Do not induce vomiting. Never give anything by mouth to an unconscious person.

4.1.4. Inhalation:

No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

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

4.2.1. Immediate Symptoms and health effects

4.2.1.1. Eye:

Not expected to cause prolonged or significant eye irritation.

4.2.1.2. Skin:

Contact with the skin is not expected to be harmful.

4.2.1.3. Ingestion:

May be harmful if swallowed.

4.2.1.4. Inhalation:

Not expected to be harmful if inhaled. Breathing this material at concentrations above the recommended exposure limits may cause central nervous system effects. Central nervous system effects may include headache, dizziness, nausea, vomiting, weakness, loss of coordination, blurred vision, drowsiness, confusion, or disorientation. At extreme exposures, central nervous system effects may include respiratory depression, tremors or convulsions, loss of consciousness, coma or death.

4.2.2. Delayed or other symptoms and health effects:

Not classified.

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

Not applicable.

5. FIREFIGHTING MEASURES

5.1. Extinguishing media

Use water fog, foam, dry chemical or carbon dioxide (CO₂) to extinguish flames. Dry Chemical, CO₂, AFFF Foam or alcohol resistant foam.

5.2. Special hazards arising from the substance or mixture

Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

5.3. Advice for firefighters

This material will burn although it is not easily ignited. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Eliminate all sources of ignition in vicinity of spilled material. Refer to Sections 5 and 8 for more information.

6.2. Environmental precautions

Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater.

6.3. Methods and material for containment and cleaning up

Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil and dispose of in a manner consistent with applicable requirements. Place other contaminated materials in disposable containers and dispose of in a manner consistent with applicable requirements. Report spills to local authorities as appropriate or required.

6.4. Reference to other sections

See sections 8 and 13.

7. HANDLING AND STORAGE

7.1. Precautions for safe handling

Do not taste or swallow. Keep out of the reach of children.

7.2. Conditions for safe storage, including any incompatibilities

7.2.1. General Handling Information:

Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

7.2.2. Container Warnings:

Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

7.3. Specific end use(s):

Antifreeze/Coolant

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. General considerations:

Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances. Refer to appropriate CEN standards.

8.2. Control parameters

8.2.1. Occupational Exposure Limits:

Component	Country/Agency	TWA	STEL	Ceiling	Notation
<i>Ethylene glycol</i>	<i>EU-Indicative</i>	<i>52 mg/m³</i>	<i>104 mg/m³</i>	--	<i>Skin</i>
<i>Ethylene glycol</i>	<i>United Kingdom</i>	<i>52 mg/m³</i>	<i>104 mg/m³</i>	--	<i>Skin</i>
<i>Glycerol</i>	<i>United Kingdom</i>	<i>10 mg/m³</i>	--	--	--

8.3. 8.2 Exposure controls

8.3.1. Engineering controls:

Use in a well-ventilated area.

8.3.2. Personal protective equipment

8.3.2.1. Eye/Face Protection:

No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

8.3.2.2. Skin Protection:

No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: Natural rubber, Neoprene, Nitrile Rubber, Polyvinyl Chloride (PVC or Vinyl).

8.3.2.3. Respiratory Protection:

No respiratory protection is normally required.

8.3.3. Environmental exposure controls:

See relevant Community environmental protection legislation or the Annex, as applicable.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Attention:

The data below are typical values and do not constitute a specification.

9.2. Information on basic physical and chemical properties

<i>Form:</i>	<i>Liquid</i>
<i>Colour:</i>	<i>Red</i>
<i>Odour:</i>	<i>Faint or Mild</i>
<i>Odour threshold</i>	<i>Not data available</i>
<i>Odor Threshold</i>	<i>No data available</i>
<i>pH:</i>	<i>8.6</i>
<i>Melting Point:</i>	<i>No data available</i>
<i>Freezing Point:</i>	<i>No data available</i>
<i>Initial Boiling Point:</i>	<i>178°C (352.4°F) (Typical)</i>
<i>Flashpoint:</i>	<i>Not Applicable</i>
<i>Flammability (solid, gas):</i>	<i>No Data Available</i>
<i>Flammability (Explosive) Limits (% by volume in air):</i>	
<i>Lower:</i>	<i>No Data Available</i>
<i>Upper:</i>	<i>No Data Available</i>
<i>Vapor Pressure:</i>	<i>No data available</i>
<i>Vapor Density (Air = 1):</i>	<i>>1</i>
<i>Relative Density:</i>	<i>1.1 (Estimated) @ 20°C (68°F) / 20°C (68°F)</i>
<i>Density:</i>	<i>1.1 kg/l @ 20°C (68°F) (Typical)</i>
<i>Solubility:</i>	<i>Miscible</i>
<i>Partition coefficient:</i>	
<i>n-octanol/water:</i>	<i>No data available</i>
<i>Auto-ignition temperature:</i>	<i>Not Applicable</i>
<i>Decomposition temperature:</i>	<i>No Data Available</i>
<i>Viscosity:</i>	<i>No data available</i>
<i>Explosive Properties:</i>	<i>No Data Available</i>
<i>Oxidising properties:</i>	<i>No Data Available</i>

9.3. Other Information:

No Data Available

10. STABILITY AND REACTIVITY

10.1. Reactivity:

This material is not expected to react.

10.2. Chemical Stability:

This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3. Possibility of hazardous reactions:

Hazardous polymerization will not occur.

10.4. Conditions to Avoid:

Not applicable

10.5. Incompatible materials to avoid:

May react with strong oxidizing agents, such as chlorates, nitrates, peroxides, etc. May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

10.6. Hazardous decomposition products:

Aldehydes (Elevated temperatures), Ketones (Elevated temperatures)

11. TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Serious Eye Damage/Irritation: The eye irritation hazard is based on evaluation of data for product components.

11.1.1. Skin Corrosion/Irritation:

The skin irritation hazard is based on evaluation of data for product components.

11.1.2. Skin Sensitization:

The skin sensitization hazard is based on evaluation of data for product components. Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for product components.

11.1.3. Acute Oral Toxicity:

The acute oral toxicity hazard is based on evaluation of data for product components.

11.1.4. Acute Inhalation Toxicity:

The acute inhalation toxicity hazard is based on evaluation of data for product components.

11.1.5. Germ Cell Mutagenicity:

The hazard evaluation is based on data for components or a similar material.

11.1.6. Carcinogenicity:

The hazard evaluation is based on data for components or a similar material.

11.1.7. Reproductive Toxicity:

The hazard evaluation is based on data for components or a similar material. Specific Target Organ Toxicity- Single Exposure: The hazard evaluation is based on data for components or a similar material.

11.1.8. Specific Target Organ Toxicity - Repeated Exposure:

The hazard evaluation is based on data for components or a similar material.

11.2. Additional toxicology information:

This product contains ethylene glycol (EG). The toxicity of EG via inhalation or skin contact is expected to be slight at room temperature. The estimated oral lethal dose is about 100 cc (3.3 oz.) for an adult human. Ethylene glycol is oxidized to oxalic acid which results in the deposition of calcium oxalate crystals mainly in the brain and kidneys. Early signs and symptoms of EG poisoning may resemble those of alcohol intoxication. Later, the victim may experience nausea, vomiting, weakness, abdominal and muscle pain, difficulty in breathing and decreased urine output. When EG was heated above the boiling point of water, vapors formed which reportedly caused unconsciousness, increased lymphocyte count, and a rapid, jerky movement of the eyes in persons chronically exposed. When EG was administered orally to pregnant rats and mice, there was an increase in fetal deaths and birth defects. Some of these effects occurred at doses that had no toxic effects on the mothers. We are not aware of any reports that EG causes reproductive toxicity in human beings.

2-Ethylhexanoic acid (2-EXA) caused an increase in liver size and enzyme levels when repeatedly administered to rats via the diet. When administered to pregnant rats by gavage or in drinking water, 2-EXA caused teratogenicity (birth defects) and delayed postnatal development of the pups. Additionally, 2-EXA impaired female fertility in rats. Birth defects were seen in the offspring of mice who were administered sodium 2-ethylhexanoate via intraperitoneal injection during pregnancy.

12. ECOLOGICAL INFORMATION

12.1. Toxicity

This material is not expected to be harmful to aquatic organisms. The product has not been tested. The statement has been derived from the properties of the individual components.

12.2. Persistence and degradability

This material is expected to be readily biodegradable. The product has not been tested. The statement has been derived from the properties of the individual components.

12.3. Bioaccumulative potential

Bioconcentration Factor:	No Data Available
Octanol/Water Partition Coefficient:	No data available

- 12.4. Mobility in soil**
No data available.
- 12.5. Results of PBT and vPvB assessment**
This product is not, or does not contain, a substance that is a potential PBT or a vPvB.
- 12.6. Other adverse effects**
No other adverse effects identified.

13. DISPOSAL CONSIDERATIONS

- 13.1. Waste treatment methods**
Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by international, country, or local laws and regulations. In accordance with European Waste Catalogue (E.W.C.) the codification is the following: 16 01 14

14. TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult appropriate Dangerous Goods Regulations for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

- 14.1. ADR/RID**
NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT
UN number: Not applicable
UN proper shipping name: Not applicable
Transport hazard class(es): Not applicable
Packing group: Not applicable
Environmental hazards: Not applicable
Special precautions for user: Not applicable
- 14.2. ICAO**
NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT
UN number: Not applicable
UN proper shipping name: Not applicable
Transport hazard class(es): Not applicable
Packing group: Not applicable
Environmental hazards: Not applicable
Special precautions for user: Not applicable
- 14.3. IMO**
NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT
UN number: Not applicable
UN proper shipping name: Not applicable
Transport hazard class(es): Not applicable
Packing group: Not applicable
Environmental hazards: Not applicable
Special precautions for user: Not applicable
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code: Not applicable

15. REGULATORY INFORMATION

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

15.1.1. Regularity lists searched:

01=EU Directive 76/769/EEC:	Restrictions on the marketing and use of certain dangerous substances.
02=EU Directive 90/394/EEC:	Carcinogens at work.
03=EU Directive 92/85/EEC:	Pregnant or breastfeeding workers.
04=EU Directive 96/82/EC (Seveso II):	Article 9.
05=EU Directive 96/82/EC (Seveso II):	Articles 6 and 7.
06=EU Directive 98/24/EC:	Chemical agents at work.
07=EU Directive 2004/37/EC:	On the protection of workers.
08=EU Regulation EC No. 689/2008:	Annex 1, Part 1.
09=EU Regulation EC No. 689/2008:	Annex 1, Part 2.
10=EU Regulation EC No. 689/2008:	Annex 1, Part 3.
11=EU Regulation EC No. 850/2004:	Prohibiting and restricting persistent organic pollutants (POPs).
12=EU REACH, Annex XVII:	Restrictions on manufacture, placing on the market and use of certain dangerous substances, mixture & article.
13=EU REACH, Annex XIV:	Candidate List of Substances of Very High Concern for Authorization (SVHC).

The following components of this material are found on the regulatory lists indicated.

Ethylene glycol 06

Chemical inventories:

All components comply with the following chemical inventory requirements: AICS (Australia), EINECS (European Union), IECSC (China), PICCS (Philippines), TSCA (United States). One or more components does not comply with the following chemical inventory requirements: DSL (Canada), ENCS (Japan), KECI (Korea).

15.2. Chemical safety assessment

No chemical safety assessment.

16. OTHER INFORMATION

- 16.1. Revision statement:**
This revision updates the following sections of this Material Safety Data Sheet: 3, 16.
- 16.2. Revision Date:**
FEBRUARY 02, 2012
- 16.3. Full text of R-phrases:**
R22; Harmful if swallowed.
R63; Possible risk of harm to the unborn child.
- 16.4. Full text of CLP H-statements:**
H302; Harmful if swallowed
H361d; Suspected of damaging the unborn child
H373; May cause damage to organs through prolonged or repeated exposure
- 16.5. Abbreviations that may have been used in this document:**
TLV Threshold Limit Value
TWA Time Weighted Average
STEL Short-term Exposure Limit
PEL Permissible Exposure Limit
CVX
CAS Chemical Abstract Service Number
NQ Not Quantifiable

Prepared according to the criteria of EU Regulation 1907/2006 by the Chevron Energy Technology Company, 100 Chevron Way, Richmond, California 94802.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.