SECTION 1: Identification

1.1. Product identifier

Product form : Substance
Trade name : ETHYLBENZENE
Chemical name : Ethyl-benzene, ethylbenzol, phenylethane
CAS-No. : 100-41-4
Formula : C_8H_{10}

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

Recommended use : Mainly used as an intermediate in the manufacture of styrene. Also used as solvent.

1.3. Supplier's details

VIDEOLAR - INNOVA S/A
BR 386, Rodovia Tabaí/Canoas, Km 419, Complexo Básico, Via do Contorno 212. Bairro: III Pólo Petroquímico
95853-000 Triunfo/RS - Brasil
T +55 (51) 3457-5800

1.4. Emergency telephone number

Emergency number : (51) 3457-5888

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to the United Nations GHS

Flammable liquids, Category 2	H225
Acute toxicity (oral), Category 5	H303
Acute toxicity (dermal) Not classified	
Specific target organ toxicity — Repeated exposure, Category 2	H373
Aspiration hazard, Category 1	H304
Hazardous to the aquatic environment — Acute Hazard, Category 2	H401

Full text of H statements : see section 16

2.2. Label elements

Labelling according to the United Nations GHS

Hazard pictograms (GHS-UN) :

GHS02 GHS08

Signal word (GHS-UN) : Danger

Hazard statements (GHS-UN) :
H225 - Highly flammable liquid and vapour.
H303 - May be harmful if swallowed
H304 - May be fatal if swallowed and enters airways.
H373 - May cause damage to organs through prolonged or repeated exposure.
H401 - Toxic to aquatic life

Precautionary statements (GHS-UN) :
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 - Keep container tightly closed.
P240 - Ground and bond container and receiving equipment.
P241 - Use explosion-proof equipment.
P242 - Use non-sparking tools.
P243 - Take action to prevent static discharges.
P260 - Do not breathe vapours, mist.
P273 - Avoid release to the environment.
P280 - Wear protective gloves, face protection, eye protection.
P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER.
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P312 - Call a POISON CENTER, a doctor if you feel unwell.
P314 - Get medical attention if you feel unwell.
P331 - Do NOT induce vomiting.
P370+P378 - In case of fire: Use media other than water to extinguish.
P403+P235 - Store in a well-ventilated place. Keep cool.
P405 - Store locked up.

P501 - Dispose of contents/container to a hazardous or special waste collection point.

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Chemical name : Ethyl-benzene, ethylbenzol, phenylethane

Name	Product identifier	%	Classification according to the United Nations GHS
Ethylbenzene (Main constituent)	(CAS-No.) 100-41-4	100	Flammable liquids, Category 2, H225 Acute toxicity (oral), Category 5, H303 Acute toxicity (dermal) Not classified Specific target organ toxicity — Repeated exposure, Category 2, H373 Aspiration hazard, Category 1, H304 Hazardous to the aquatic environment — Acute Hazard, Category 2, H401

Full text of H-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Seek medical attention immediately.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor. Administer oxygen if breathing is difficult. Apply artificial respiration if breathing stopped.

First-aid measures after skin contact : After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water. Be careful, the product may remain trapped under clothing, footwear or a wrist-watch. Get medical advice if skin irritation persists.

First-aid measures after eye contact : Remove contact lenses, if present and easy to do. Continue rinsing. Rinse immediately with plenty of water for 15 minutes. Get immediate medical advice/attention.

First-aid measures after ingestion : Do not induce vomiting. If swallowed, rinse mouth with water (only if the person is conscious). If the person is fully conscious, make him/her drink plenty of water. Never give an unconscious person anything to drink. If vomiting occurs have person lean forward. Prevent aspiration of vomit. Get medical advice/attention if you feel unwell.

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

Symptoms/effects : May cause damage to organs through prolonged or repeated exposure. May be fatal if swallowed and enters airways.

Symptoms/effects after inhalation : May cause headache, nausea and irritation of respiratory tract.

Symptoms/effects after skin contact : May cause an allergic skin reaction.

Symptoms/effects after eye contact : May cause eye irritation, stinging, redness.

Symptoms/effects after ingestion : May be harmful if swallowed. May cause irritation to the digestive tract. Ingestion may cause nausea and vomiting. Risk of lung oedema.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Dry chemical, CO_2, water spray or regular foam.

Unsuitable extinguishing media : Do not use a heavy water stream. Use of heavy stream of water may spread fire.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Highly flammable liquid and vapour. The vapours are denser than air and may travel along the ground. Distance ignition possible. Agitation can cause build up of electrostatic charge. In case of fire and/or explosion do not breathe fumes.

Explosion hazard : Vapours may form explosive mixture with air. Prolonged exposure to fire may cause containers to rupture/explode.

Reactivity : May react violently with oxidants.

5.3. Advice for firefighters

Precautionary measures fire : Keep container closed when not in use. This product is not to be used under conditions of poor ventilation.

Firefighting instructions : Combat amount of the fire outbreak in relation to the wind direction. Get the package away from the fire if this can be done without risk. Use water spray or fog for cooling exposed containers. Fight fire from a safe distance or use hoses with support or cannon engine. Cool laterally with water containers exposed to flames, even after the fire is extinguished. Do not enter fire area without proper protective equipment, including respiratory protection.

Protection during firefighting : Use self-contained breathing apparatus and chemically protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Eliminate every possible source of ignition. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous. May be harmful to aquatic organisms, to flora, to soil organisms. Clean up any spills as soon as possible, using an absorbent material to collect it. Stop leak if safe to do so. Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material damage.

6.1.1. For non-emergency personnel

Protective equipment : Wear recommended personal protective equipment.

Emergency procedures : No flames, no sparks. Eliminate all sources of ignition. Do not touch or walk on the spilled product. Evacuate area. Only qualified personnel equipped with suitable protective equipment may intervene. Notify fire brigade and environmental authorities.

6.1.2. For emergency responders

Protective equipment : Use self-contained breathing apparatus and chemically protective clothing. Gloves. Wear security glasses which protect from splashes. Equip cleanup crew with proper protection.

Emergency procedures : Keep away from combustible material. All equipment used when handling the product must be grounded. Evacuate unnecessary personnel. Stop leak if safe to do so.

6.2. Environmental precautions

Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous. Reduce vapour with fog or fine water spray. Do not allow product to spread into the environment. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment : Absorb spilled material with sand or earth. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leak without risks if possible.

Methods for cleaning up : Absorb remaining liquid with sand or inert absorbent and remove to safe place. Clean contaminated surfaces with an excess of water. Absorb spillage to prevent material damage.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Provide adequate ventilation to minimize dust and/or vapour concentrations. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Handle carefully. Ground/bond container and receiving equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Keep only in original container. Do not handle until all safety precautions have been read and understood.

Hygiene measures : Always wash hands after handling the product. Remove contaminated clothes. Do not eat, drink or smoke when using this product.

Additional hazards when processed : Flammable vapours may accumulate in the container.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Ensure adequate ventilation, especially in confined areas. Store locked up. Store in tightly closed, leak-proof containers.

Storage conditions : Keep cool. Store in a well-ventilated place. Keep container tightly closed. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Storage area : Store in a dry, well ventilated place away from sources of heat, ignition and direct sunlight.

Incompatible materials : Strong oxidizers. Chromic anhydride. Nitric acid. Perchlorates. Combustible materials.

Packaging materials : Stainless steel. Carbon steel.

Storage temperature : 20 °C

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

ETHYLBENZENE (100-41-4)		
USA - ACGIH	Local name	Ethylbenzene
USA - ACGIH	ACGIH TWA (ppm)	20 ppm
USA - ACGIH	ACGIH STEL (mg/m³)	543 mg/m³
USA - ACGIH	ACGIH STEL (ppm)	125 ppm
USA - ACGIH	Remark (ACGIH)	URT irr; kidney dam (nephropathy)

8.2. Appropriate engineering controls

Appropriate engineering controls	:	Measure concentrations regularly, and at the time of any change occuring in conditions likely to have consequences on workers exposure.
Environmental exposure controls	:	Do not exceed the occupational exposure limits (OEL).

8.3. Individual protection measures, such as personal protective equipment (PPE)

Hand protection	:	Protective gloves.
Eye protection	:	Wear closed safety glasses.
Skin and body protection	:	Wear suitable protective clothing.
Respiratory protection	:	Where exposure through inhalation may occur from use, respiratory protection equipment is recommended.

8.4. Exposure limit values for the other components

No additional information available

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Appearance	:	No data available
Molecular mass	:	106,17 g/mol
Colour	:	Colourless
Odour	:	Aromatic, pungent. Similar to gasoline.
Odour threshold	:	2 - 20 ppm 9 - 88 mg/m³
pH	:	No data available
pH solution	:	No data available
Relative evaporation rate (butylacetate=1)	:	0,87
Relative evaporation rate (ether=1)	:	14
Melting point	:	-95 °C
Freezing point	:	No data available
Boiling point	:	132,6 °C
Flash point	:	12,8 °C (closed cup); 26,7ºC (open cup)
Auto-ignition temperature	:	432 °C
Decomposition temperature	:	No data available
Flammability (solid, gas)	:	No data available
Vapour pressure	:	9 hPa (10 mmHg at 25,9 ºC)
Vapour pressure at 50 °C	:	No data available
Relative vapour density at 20 °C	:	3,66 (air=1)
Relative density	:	0,864 (25ºC)
Relative density of saturated gas/air mixture	:	No data available
Density	:	866 kg/m³
Relative gas density	:	No data available
Solubility	:	Insoluble in water. Soluble in ethanol, ether. Water: 15 g/100ml (25ºC)
Log Pow	:	No data available
Log Kow	:	3,15
Viscosity, kinematic	:	0,782 mm²/s
Viscosity, dynamic	:	0,64 mPa.s
Explosive properties	:	No data available
Oxidising properties	:	No data available
Explosive limits	:	1,2 – 6,8 vol % 43 - 340 g/m³
Lower explosive limit (LEL)	:	No data available
Upper explosive limit (UEL)	:	No data available

9.2. Other information

Specific conductivity	:	< 10000 pS/m
Saturation concentration	:	41 g/m³
VOC content	:	100 %

SECTION 10: Stability and reactivity

10.1. Reactivity

May react violently with oxidants.

10.2. Chemical stability

In use may form flammable/explosive vapour-air mixture.

10.3. Possibility of hazardous reactions

Liquids/vapours may ignite or react with other materials.

10.4. Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Avoid contact with hot surfaces. High temperature. Avoid formation of vapours.

10.5. Incompatible materials

Strong oxidizers. Chromic anhydride. Nitric acid, Perchlorates. Combustible materials.

10.6. Hazardous decomposition products

May liberate toxic gases.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : May be harmful if swallowed.

Acute toxicity (dermal) : Not classified.

Acute toxicity (inhalation) : Not classified

ETHYLBENZENE (100-41-4)	
LD50 oral rat	3500 mg/kg
LD50 dermal rabbit	15415 mg/kg
LC50 inhalation rat (mg/l)	17,8 mg/l/4h
LC50 inhalation rat (ppm)	4000 ppm/4h

Skin corrosion/irritation : Product exposure can cause slight skin irritation. It is little absorbed by the skin.

Serious eye damage/irritation : Exposure to vapors may cause eye irritation ranging from momentary to severe with tearing depending on concentration.

Respiratory or skin sensitisation : Prolonged or repeated contact may cause dermatitis, redness, hair loss and dry appearance due to the degreasing action of the solvent.

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

STOT-single exposure : Not classified

STOT-repeated exposure : May cause damage to organs through prolonged or repeated exposure. Intense exposure for long periods may cause effects on kidneys and possibly on the blood and testicles.

Aspiration hazard : May be fatal if swallowed and enters airways.

ETHYLBENZENE (100-41-4)	
Viscosity, kinematic	0,782 mm²/s

SECTION 12: Ecological information

12.1. Toxicity

Acute aquatic toxicity : Toxic to aquatic life.

Chronic aquatic toxicity : Not classified

ETHYLBENZENE (100-41-4)	
LC50 fish 1	4,2 mg/l (Oncorhynchus mykiss)
LC50 fish 2	5,1 mg/l (Menidia menidia)
EC50 Daphnia 1	2,1 mg/l

12.2. Persistence and degradability

ETHYLBENZENE (100-41-4)	
BOD - Biochemical oxygen demand	1,44 g O_2/g substance
COD - Chemical oxygen demand	2,1 g O_2/g substance
ThOD - Theoretical oxygen demand	3,17 g O_2/g substance

12.3. Bioaccumulative potential

ETHYLBENZENE (100-41-4)	
BCF fish 1	1
BCF fish 2	15 - 79
BCF other aquatic organisms 1	4,68
Log Kow	3,15
Log Koc	2,71

12.4. Mobility in soil

ETHYLBENZENE (100-41-4)	
Surface tension	0,029 N/m

12.5. Other adverse effects

Other adverse effects : No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods : Must follow special treatment according to local regulation.

Sewage disposal recommendations : Disposal must be done according to official regulations.

Product/Packaging disposal recommendations : Disposal must be done according to official regulations.

Additional information : Flammable vapours may accumulate in the container. Contaminated packaging should be sanitized and reused. If it is not possible to decontaminate, dispose of it in industrial landfills (class I) authorized in accordance with current legislation. Do not cut, weld or incinerate used packaging.

SECTION 14: Transport information

In accordance with IMDG / IATA / UN RTDG

14.1. UN number

UN-No.(UN RTDG) : 1175

UN-No. (IMDG) : 1175

UN-No. (IATA) : 1175

14.2. Proper Shipping Name

Proper Shipping Name (UN RTDG) : ETHYLBENZENE

Proper Shipping Name (IMDG) : ETHYLBENZENE

Proper Shipping Name (IATA) : ETHYLBENZENE

14.3. Transport hazard class(es)

UN RTDG

Transport hazard class(es) (UN RTDG) : 3

Danger labels (UN RTDG) : 3

:

IMDG

Transport hazard class(es) (IMDG) : 3

Danger labels (IMDG) : 3

:

IATA

Transport hazard class(es) (IATA) : 3

Hazard labels (IATA) : 3

:

14.4. Packing group

Packing group (UN RTDG)	:	II
Packing group (IMDG)	:	II
Packing group (IATA)	:	II

14.5. Environmental hazards

Dangerous for the environment	:	No
Marine pollutant	:	No
Other information	:	No supplementary information available

14.6. Special precautions for user

- UN RTDG

Limited quantities (UN RTDG)	:	1L
Excepted quantities (UN RTDG)	:	E2
Packing instruction (UN RTDG)	:	P001, IBC02
Portable tank and bulk container special instructions (UN RTDG)	:	T4
Portable tank and bulk container special provisions (UN RTDG)	:	TP1

- IMDG

Limited quantities (IMDG)	:	1 L
Excepted quantities (IMDG)	:	E2
Packing instructions (IMDG)	:	P001
IBC packing instructions (IMDG)	:	IBC02
Tank instructions (IMDG)	:	T4
Tank special provisions (IMDG)	:	TP1
EmS-No. (Fire)	:	F-E - FIRE SCHEDULE Echo - NON-WATER-REACTIVE FLAMMABLE LIQUIDS
EmS-No. (Spillage)	:	S-D - SPILLAGE SCHEDULE Delta - FLAMMABLE LIQUIDS
Stowage category (IMDG)	:	B
Flash point (IMDG)	:	22°C c.c.
Properties and observations (IMDG)	:	Colourless liquid with an aromatic odour. Flashpoint: 22°C c.c. Explosive limits: 1% to 6,7% Immiscible with water.

- IATA

PCA Excepted quantities (IATA)	:	E2
PCA Limited quantities (IATA)	:	Y341
PCA limited quantity max net quantity (IATA)	:	1L
PCA packing instructions (IATA)	:	353
PCA max net quantity (IATA)	:	5L
CAO packing instructions (IATA)	:	364
CAO max net quantity (IATA)	:	60L
ERG code (IATA)	:	3L

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health, and environmental national regulations specific for the product

Regulatory reference : IMDG Code - International Maritime Dangerous Goods.
IATA - International Air Transport Association.
UN - Recommendations on the Transport of Dangerous Goods.
GHS - Globally Harmonized System of Classification and Labelling of Chemicals

SECTION 16: Other information

Data Source : VIDEOLAR - INNOVA S/A.,- FISPQ - ETILBENZENO; May 15th, 2017.

Abbreviations and Acronyms : ACGIH – American Conference of Governement Industrial Hygienists, United States
BCF – Bioconcentration Factor
CAS – Chemical Abstracts Service
LC50 – Lethal Concentrtion 50%
EC50 – Effective Concentration 50%
VOC – Volatile Organic Compounds
LD50 – Lethal Dose 50%
GHS – Globally Harmonized System of Classification and Labeling of Chemicals
USA – United States of America
Kow – Partition coefficient in the octanol phase / aqueous phase
OEL – Occupational exposure limit
STEL – Short Term Exposure Limit
TWA – Time Weighted Average

Full text of H-statements:

H225	Highly flammable liquid and vapour.
H303	May be harmful if swallowed
H304	May be fatal if swallowed and enters airways.
H373	May cause damage to organs through prolonged or repeated exposure.
H401	Toxic to aquatic life

SDS UN

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.