

ETHYL ACRYLATE

GHS Safety Data Sheet

Version No:3

Page 1 of 17

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

ETHYL ACRYLATE

OTHER NAMES

C5-H8-O2, CH₂CHCOOC₂H₅, "acrylic acid ethyl ester", "ethyl propenoate", "ethyl 2-propenoate", "ethyl 2-propenoate", ethoxycarbonylethylene, "2-propenoic acid ethyl ester", "2-propenoic acid ethyl ester", "ethyl acrylate monomer inhibited", NCI-C50384

PROPER SHIPPING NAME

ETHYL ACRYLATE, STABILIZED

PRODUCT USE

Monomer used in polymer manufacture of acrylic resins and plastics; also for copolymer latexes. In manufacture of polyacrylate elastomers and acrylic rubber; in forming denture materials.

SUPPLIER

Company: S D FINE- CHEM LIMITED

Address:

315- 317, T.V. INDUSTRIAL ESTATE,

248, WORLI,

MUMBAI- 400030.INDIA.

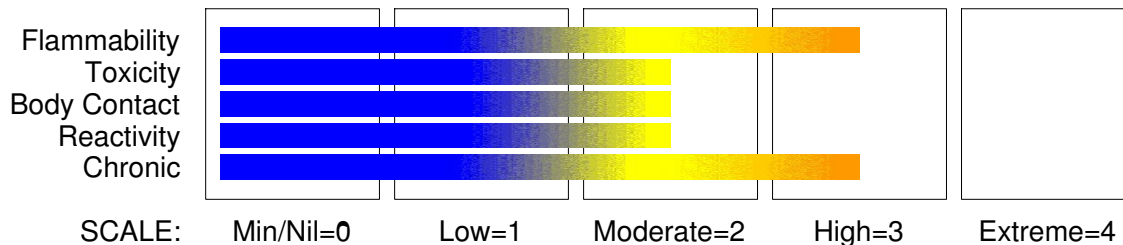
technical@sdfine.com

Telephone: 91- 22- 24959898

Telephone: 91- 22- 24959899

Fax: 91- 22- 24937232

HAZARD RATINGS



continued...

ETHYL ACRYLATE

GHS Safety Data Sheet

Version No:3

Page 2 of 17

Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Acute Toxicity (Dermal) Category 4
Acute Toxicity (Inhalation) Category 4
Acute Toxicity (Oral) Category 4
Eye Irritation Category 2A
Flammable Liquid Category 2
Respiratory Irritation Category 3
Respiratory Sensitizer Category 1
Skin Corrosion/Irritation Category 2
Skin Sensitizer Category 1



EMERGENCY OVERVIEW

HAZARD

DANGER

Determined by using GHS criteria:

H335 H225 H332 H312 H302 H315 H319 H334 H317

May cause respiratory irritation

Highly flammable liquid and vapour

Harmful if inhaled

Harmful in contact with skin

Harmful if swallowed

Causes skin irritation

Causes serious eye irritation

May cause allergic or asthmatic symptoms or breathing difficulties if inhaled

May cause allergic skin reaction

PRECAUTIONARY STATEMENTS

Prevention

Wash hands thoroughly after handling.

In case of inadequate ventilation wear respiratory protection.

Ground/bond container and receiving equipment.

Do not eat, drink or smoke when using this product.

Avoid breathing dust/fume/gas/mist/vapours/spray.

Use only outdoors or in a well ventilated area.

Wear protective gloves/clothing

Wash thoroughly after handling.

Contaminated clothing should not be allowed out of the workplace.

Use explosion-proof electrical/ventilating/lighting/equipment

Wear protective gloves and eye/face protection.

continued...

ETHYL ACRYLATE

GHS Safety Data Sheet

Version No:3

Page 3 of 17

Section 2 - HAZARDS IDENTIFICATION

Keep container tightly closed.
Keep away from heat/sparks/open flame - No smoking.
Use only non-sparking tools.
Take precautionary measures against static discharge

Response

Wash contaminated clothing before reuse.
If skin irritation or rash occurs, seek medical advice/attention.
If eye irritation persists, get medical advice/attention.
If experiencing respiratory symptoms call a POISON CENTER or doctor/physician.
IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If skin irritation occurs, seek medical advice/attention.
Wear eye/face protection.
Call a POISON CENTER or doctor/physician if you feel unwell.
Specific treatment: refer to Label or MSDS.
If on skin or hair: remove/take off immediately all contaminated clothing. Rinse with water/shower.
In case of fire, use foam for extinction.
IF ON SKIN: Gently wash with plenty of soap and water.
IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
Remove/Take off immediately all contaminated clothing
Wash/Decontaminate removed clothing before reuse.

Storage

Store locked up.

Disposal

Dispose of contents and container in accordance with relevant legislation.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
ethyl acrylate	140-88-5	99.8
Contains inhibitor such as hydroquinone	123-31-9	0.001
or 4- methoxyphenol (MEHQ)	150-76-5	

Section 4 - FIRST AID MEASURES

SWALLOWED

For advice, contact a Poisons Information Centre or a doctor.
• 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

continued...

ETHYL ACRYLATE

GHS Safety Data Sheet

Version No:3

Page 4 of 17

Section 4 - FIRST AID MEASURES

- Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
- Seek medical advice.

EYE

If this product comes in contact with the eyes:

- Immediately hold eyelids apart and flush the eye continuously with 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.
- Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
- Transport to hospital or doctor without delay.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

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.

INHALED

- 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.

NOTES TO PHYSICIAN

Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.
- Water spray or fog - Large fires only.

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- May be violently or explosively reactive.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.
- Consider evacuation (or protect in place).
- Fight fire from a safe distance, with adequate cover.
- If safe, switch off electrical equipment until vapour fire hazard removed.
- Use water delivered as a fine spray to control fire and cool adjacent area.
- Avoid spraying water onto liquid pools.

continued...

ETHYL ACRYLATE

GHS Safety Data Sheet

Version No:3

Page 5 of 17

Section 5 - FIRE FIGHTING MEASURES

- 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.

FIRE/EXPLOSION HAZARD

- Liquid and vapour are highly flammable.
- Severe fire hazard when exposed to heat, flame and/or oxidisers.
- Vapour forms an explosive mixture with air.
- Severe explosion hazard, in the form of vapour, when exposed to flame or spark.
- Vapour may travel a considerable distance to source of ignition.
- Heating may cause expansion / decomposition with violent rupture of containers.
- On combustion, may emit toxic fumes of carbon monoxide (CO).

Other combustion products include:

carbon monoxide (CO) and acrylic monomer.

FIRE INCOMPATIBILITY

Avoid any contamination of this material as it is very reactive and any contamination is potentially hazardous.

Avoid contamination with strong oxidising agents as ignition may result.

Contamination with polymerisation catalysts - peroxides, persulfates, oxidising agents - also strong acids, strong alkalis, will cause polymerisation with exotherm - generation of heat.

Polymerisation of large quantities may be violent - even explosive.

Personal Protective Equipment

Breathing apparatus.

Gas tight chemical resistant suit.

Limit exposure duration to 1 BA set 30 mins.

Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS

- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Control personal contact by using protective equipment.
- Contain and absorb small quantities with vermiculite or other absorbent material.
- Wipe up.
- Collect residues in a flammable waste container.

MAJOR SPILLS

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- May be violently or explosively reactive.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water course.
- Consider evacuation (or protect in place).
- No smoking, naked lights or ignition sources.
- Increase ventilation.
- Stop leak if safe to do so.
- Water spray or fog may be used to disperse vapour.

continued...

ETHYL ACRYLATE

GHS Safety Data Sheet

Version No:3

Page 6 of 17

Section 6 - ACCIDENTAL RELEASE MEASURES

- Contain spill with sand, earth or vermiculite.
- Use only spark-free shovels and explosion proof equipment.
- Collect recoverable product into labelled containers for recycling.
- 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.

EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)

The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

life-threatening health effects is:

ethyl acrylate 300 ppm

irreversible or other serious effects or symptoms which could impair an individual's ability to take

protective action is:

ethyl acrylate 30 ppm

other than mild, transient adverse effects without perceiving a clearly defined odour is:

ethyl acrylate 15 ppm

The threshold concentration below which most people will experience no appreciable risk of health effects:

ethyl acrylate 15 ppm

American Industrial Hygiene Association (AIHA)

Ingredients considered according to the following cutoffs

Very Toxic (T+)	$\geq 0.1\%$	Toxic (T)	$\geq 3.0\%$
R50	$\geq 0.25\%$	Corrosive (C)	$\geq 5.0\%$
R51	$\geq 2.5\%$		
else	$\geq 10\%$		

where percentage is percentage of ingredient found in the mixture

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



+: May be stored together

O: May be stored together with specific preventions

X: Must not be stored together

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

Avoid generating and breathing mist.

continued...

ETHYL ACRYLATE

GHS Safety Data Sheet

Version No:3

Page 7 of 17

Section 7 - HANDLING AND STORAGE

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.
- DO NOT enter confined spaces until atmosphere has been checked.
- Avoid smoking, naked lights, heat or ignition sources.
- When handling, DO NOT eat, drink or smoke.
- Vapour may ignite on pumping or pouring due to static electricity.
- DO NOT use plastic buckets.
- Earth and secure metal containers when dispensing or pouring product.
- Use spark-free tools when handling.
- Avoid contact with incompatible materials.
- Keep containers securely sealed.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately.
- Use good occupational work practice.
- Observe manufacturer's storing and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.

SUITABLE CONTAINER

Glass container.

- Metal can or drum
- Packaging as recommended by manufacturer.
- Check all containers are clearly labelled and free from leaks.

STORAGE INCOMPATIBILITY

Segregate from strong oxidisers particular peroxides and acids.

Attacks, softens and may dissolve rubber, many plastics, paints and coatings.

STORAGE REQUIREMENTS

- Storage requires stabilising inhibitor content and dissolved oxygen content to be monitored. Refer to manufacturer's recommended levels.
 - DO NOT overfill containers so as to maintain free head space above product.
 - Blanketing or sparging with nitrogen or oxygen free gas will deactivate stabiliser.
- Store below 38 deg. C.
- Store in a cool area and away from sunlight.
- Store in original containers in approved flame-proof area.
 - No smoking, naked lights, heat or ignition sources.
 - DO NOT store in pits, depressions, basements or areas where vapours may be trapped.
 - Keep containers securely sealed.
 - Store away from incompatible materials in a cool, dry well ventilated area.
 - Protect containers against physical damage and check regularly for leaks.
 - Observe manufacturer's storing and handling recommendations.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

- | | |
|----------------------------|---|
| • ethyl acrylate: | CAS:140- 88- 5 |
| • hydroquinone: | CAS:123- 31- 9 CAS:57534- 13- 1 CAS:8027- 02- 9 |
| • 4- methoxyphenol (MEHQ): | CAS:150- 76- 5 |

continued...

ETHYL ACRYLATE

GHS Safety Data Sheet

Version No:3

Page 8 of 17

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EMERGENCY EXPOSURE LIMITS

Material	Revised IDLH Value (mg/m3)	Revised IDLH Value (ppm)
ethyl acrylate		300
hydroquinone	50	

ODOUR SAFETY FACTOR (OSF)

OSF=4.2E3 (ETHYL ACRYLATE)

Exposed individuals are reasonably expected to be warned, by smell, that the Exposure Standard is being exceeded.

Odour Safety Factor (OSF) is determined to fall into either Class A or B.

The Odour Safety Factor (OSF) is defined as:

OSF= Exposure Standard (TWA) ppm/ Odour Threshold Value (OTV) ppm

Classification into classes follows:

Class	OSF	Description
A	550	Over 90% of exposed individuals are aware by smell that the Exposure Standard (TLV- TWA for example) is being reached, even when distracted by working activities
B	26- 550	As " A" for 50- 90% of persons being distracted
C	1- 26	As " A" for less than 50% of persons being distracted
D	0.18- 1	10- 50% of persons aware of being tested perceive by smell that the Exposure Standard is being reached
E	<0.18	As " D" for less than 10% of persons aware of being tested

MATERIAL DATA

Odour Threshold Value: 0.00024 ppm (detection), 0.00037 ppm (recognition)

Saturated air at 20 deg C and 1 atm. contains 38500 ppm ethyl acrylate by volume.

Exposure at or below the recommended TLV-TWA is thought to protect the worker from the significant risk of severe eye, nose and skin irritation and to minimise irritant effects of chronic exposure to ethyl acrylate vapour. The reported ability of ethyl acrylate to induce skin sensitisation in exposed human volunteers suggest that some individuals may be hypersensitive or otherwise unusually responsive from exposure to certain chemicals - these individuals may NOT be adequately protected from adverse health effects at the TLV-TWA.

Foetotoxic effects were seen after oral administration to rats.

INGREDIENT DATA

HYDROQUINONE:

The recommended TLV-TWA takes into account the toxicology of hydroquinone and experience of industrial exposures to benzenediols. Exposure at or

continued...

ETHYL ACRYLATE

GHS Safety Data Sheet

Version No:3

Page 9 of 17

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

below the limit is thought to minimise the risk to workers of eye injury, dermatitis and central nervous system effects. A short-term duration exposure value has not been recommended, because no quantitative data as to the levels of hydroquinone which produce eye irritation or more serious corneal changes has been identified.

4-METHOXYPHENOL (MEHQ):

MEHQ has caused ocular toxicity in animals and skin depigmentation in rodents and workers. The recommendation for the TLV-TWA arises from documented eye and skin toxicities and by analogy with hydroquinone.

PERSONAL PROTECTION



EYE

- Chemical goggles.
- Full face shield may be required for supplementary but never for primary protection of eyes
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

HANDS/FEET

- Barrier cream and Butyl rubber gloves.
- Wear chemical protective gloves, eg. PVC.
- Wear safety footwear.

OTHER

- Overalls.
- PVC Apron.
- PVC protective suit may be required if exposure severe.
- Eyewash unit.
- Ensure there is ready access to a safety shower.

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:
"Forsberg Clothing Performance Index".

The effect(s) of the following substance(s) are taken into account in the computer-generated selection: ethyl acrylate

continued...

ETHYL ACRYLATE

GHS Safety Data Sheet

Version No:3

Page 10 of 17

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Protective Material

BUTYL	A
PVA	A
TEFLON	A
BUTYL/NEOPRENE	C
VITON/NEOPRENE	C

A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion

C: Poor to Dangerous Choice for other than short term immersion

NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -

* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

RESPIRATOR

Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant. Protection Factors (defined as the ratio of contaminant outside and inside the mask) may also be important.

Breathing Zone Level ppm (volume)	Maximum Protection Factor	Half- face Respirator	Full- Face Respirator
1000	10	A- AUS	-
1000	50	-	A- AUS
5000	50	Airline *	-
5000	100	-	A- 2
10000	100	-	A- 3
	100+		Airline**

* - Continuous Flow

** - Continuous-flow or positive pressure demand.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.

For further information consult

your

Occupational Health and Safety Advisor.

ENGINEERING CONTROLS

Use in a well-ventilated area.

General exhaust is adequate under normal operating conditions. Local exhaust ventilation may be required in specific circumstances. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant:
solvent, vapours, degreasing etc., evaporating
from tank (in still air).
aerosols, fumes from pouring operations,
intermittent container filling, low speed

Air Speed:
0.25- 0.5 m/s (50- 100 f/min)

0.5- 1 m/s (100- 200 f/min.)

continued...

ETHYL ACRYLATE

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)
direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)
grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).

1- 2.5 m/s (200- 500 f/min.)

2.5- 10 m/s (500- 2000 f/min.)

Within each range the appropriate value depends on:

Lower end of the range

1: Room air currents minimal or favourable to capture

2: Contaminants of low toxicity or of nuisance value only.

3: Intermittent, low production.

4: Large hood or large air mass in motion

Upper end of the range

1: Disturbing room air currents

2: Contaminants of high toxicity

3: High production, heavy use

4: Small hood- local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Clear highly flammable liquid; floats on water. Characteristic odour.

Slightly nauseating odour, retained by clothing.

Does not mix with water (solubility 1.5%). Mixes with alcohol and ether.

CARE: Stabilised (inhibited) reactive monomer. Requires controlled storage conditions for stability.

PHYSICAL PROPERTIES

Liquid.

Does not mix with water.

Floats on water.

Molecular Weight: 100.13

Melting Range (°C): - 75

Solubility in water (g/L): Immiscible

pH (1% solution): Not applicable.

Volatile Component (%vol): 100

Relative Vapour Density (air=1): 3.45

Lower Explosive Limit (%): 1.4

Boiling Range (°C): 99

Specific Gravity (water=1): 0.92

pH (as supplied): Not applicable

Vapour Pressure (kPa): 3.92 @ 20 C.

Evaporation Rate: 3.3 BuAc=1

Flash Point (°C): 9 (TCC).

Upper Explosive Limit (%): 14

continued...

ETHYL ACRYLATE

GHS Safety Data Sheet

Version No:3

Page 12 of 17

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Autoignition Temp (°C): 383

State: Liquid

Decomposition Temp (°C): Not available

Viscosity: Not available

log Kow: 0.5-0.59

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

Avoid any contamination of this material as it is very reactive and any contamination is potentially hazardous.

- Material contains a stabiliser / polymerisation inhibitor system that provides workable but not indefinite shelf life.
- Storage at higher temperatures and long term storage may result in polymerisation with solidification. In larger containers, this may be more pronounced.
- DO NOT open hot exotherming drums - cool externally with water to avoid vapour release.
- Polymerisation may occur at elevated temperatures.
- Polymerisation may be accompanied by generation of heat as exotherm.
- Process is self accelerating as heating causes more rapid polymerisation.
- Exotherm may cause boiling with generation of acrid, toxic and flammable vapour.
- Polymerisation and exotherm may be violent if contamination with strong acids, amines or catalysts occurs.
- Polymerisation and exotherm of material in bulk may be uncontrollable and result in rupture of storage tanks.
- Polymerisation may occur if stabilising inhibitor becomes depleted by aging.
- Stabilising inhibitor requires dissolved oxygen to be present in liquid for effective action.
- Specific storage requirements must be met for stability on ageing and transport.

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

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.

Considered an unlikely route of entry in commercial/industrial environments.

EYE

Evidence exists, or practical experience predicts, that the material may cause 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 eye contact may cause inflammation characterised by temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.

The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

SKIN

Skin contact with the material may be harmful; systemic effects may result following absorption.

Evidence exists, or practical experience predicts, that the material either produces inflammation of the skin in a substantial number of individuals following direct contact,

continued...

ETHYL ACRYLATE

Section 11 - TOXICOLOGICAL INFORMATION

and/or produces significant 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 (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis.

Sensitisation may result in allergic dermatitis responses including rash, itching, hives or swelling of extremities.

Prolonged or repeated skin contact may cause.

blisters or burns.

Toxic effects may result from skin absorption.

Absorption by skin may readily exceed vapour inhalation exposure. Symptoms for skin absorption are the same as for inhalation.

Bare unprotected skin should not be exposed to this material.

The material may accentuate any pre-existing dermatitis condition.

The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) and swelling epidermis. Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis.

INHALED

Evidence shows, or practical experience predicts, that the material produces irritation of the respiratory system in a substantial number of individuals following inhalation.

Inhalation hazard is increased at higher temperatures.

Inhalation of vapour may result in nausea, headache.

Inhalation of vapour may aggravate a pre-existing respiratory condition.

Respiratory sensitisation may result in allergic/asthma like responses; from coughing and minor breathing difficulties to bronchitis with wheezing, gasping.

CHRONIC HEALTH EFFECTS

Limited evidence shows that inhalation of the material is capable of inducing a sensitisation reaction in a significant number of individuals at a greater frequency than would be expected from the response of a normal population.

Pulmonary sensitisation, resulting in hyperactive airway dysfunction and pulmonary allergy may be accompanied by fatigue, malaise and aching. Significant symptoms of exposure may persist for extended periods, even after exposure ceases. Symptoms can be activated by a variety of nonspecific environmental stimuli such as automobile exhaust, perfumes and passive smoking.

Practical experience shows that skin contact with the material is capable either of inducing a sensitisation reaction in a substantial number of individuals, and/or of producing a positive response in experimental animals.

Principal routes of exposure are usually by skin contact.

with the material, skin contact/absorption and inhalation of vapour.

Prolonged or repeated skin contact may cause drying with cracking, irritation and possible dermatitis following.

Sensitisation may give severe responses to very low levels of exposure, in situations where exposure may occur.

When administered by gavage ethyl acrylate induced squamous cell carcinomas or papillomas of the forestomach in both female and male rats and mice. These tumours may be a result of the severe local irritation produced by the substance. Long-term studies in which the substance was inhaled or applied dermally showed no carcinogenic effects.

continued...

ETHYL ACRYLATE

GHS Safety Data Sheet

Version No:3

Page 14 of 17

Section 11 - TOXICOLOGICAL INFORMATION

TOXICITY AND IRRITATION

TOXICITY

Oral (rat) LD50: 800 mg/kg

Inhalation (human) TCl₀: 50 ppm

Inhalation (rat) LC50: 1414 ppm/4h

Dermal (rabbit) LD50: 1800 mg/kg

WARNING: This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans.

Tenth Annual Report on Carcinogens: Substance anticipated to be Carcinogen [National Toxicology Program: U.S. Dep. of Health & Human Services 2002].

Based on the available oncogenicity data and without a better understanding of the carcinogenic mechanism the Health and Environmental Review Division (HERD), Office of Toxic Substances (OTS), of the US EPA previously concluded that all chemicals that contain the acrylate or methacrylate moiety ($\text{CH}_2=\text{CHCOO}$ or $\text{CH}_2=\text{C}(\text{CH}_3)\text{COO}$) should be considered to be a carcinogenic hazard unless shown otherwise by adequate testing. This position has now been revised and acrylates and methacrylates are no longer de facto carcinogens.

HYDROQUINONE:

TOXICITY

Oral (human) LDLo: 29 mg/kg

Oral (human) TDLo: 170 mg/kg

Oral (rat) LD50: 320 mg/kg

Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions. The significance of the contact allergen is not simply determined by its sensitisation potential: the distribution of the substance and the opportunities for contact with it are equally important. A weakly sensitising substance which is widely distributed can be a more important allergen than one with stronger sensitising potential with which few individuals come into contact. From a clinical point of view, substances are noteworthy if they produce an allergic test reaction in more than 1% of the persons tested. The material may produce severe skin irritation after prolonged or repeated exposure, and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) thickening of the epidermis.

Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis. Prolonged contact is unlikely, given the severity of response, but repeated exposures may produce severe ulceration.

The substance is classified by IARC as Group 3:

NOT classifiable as to its carcinogenicity to humans.

Evidence of carcinogenicity may be inadequate or limited in animal testing.

4-METHOXYPHENOL (MEHQ):

TOXICITY

Oral (rat) LD50: 1600 mg/kg

IRRITATION

Skin (rabbit): 500 mg Open - Mild

Skin (rabbit): 10 mg/24h - Mild

Eye (rabbit): 45 mg - Mild

Eye (rabbit): 1204 ppm/7h

IRRITATION

Skin (human): 2% - Mild

Skin (human): 5% - SEVERE

IRRITATION

Skin (rabbit): 6000 mg/12d- I Mild

continued...

ETHYL ACRYLATE

GHS Safety Data Sheet

Version No:3

Page 15 of 17

Section 12 - ECOLOGICAL INFORMATION

Hazardous Air Pollutant:	Yes
Algae IC50 (72hr.) (mg/l):	14
BOD5:	28%
BOD20:	35%
COD:	1.71
ThOD:	1.92
Half- life Soil - High (hours):	168
Half- life Soil - Low (hours):	24
Half- life Air - High (hours):	22.7
Half- life Air - Low (hours):	2.37
Half- life Surface water - High (hours):	168
Half- life Surface water - Low (hours):	24
Half- life Ground water - High (hours):	336
Half- life Ground water - Low (hours):	48
Aqueous biodegradation - Aerobic - High (hours):	168
Aqueous biodegradation - Aerobic - Low (hours):	24
Aqueous biodegradation - Anaerobic - High (hours):	672
Aqueous biodegradation - Anaerobic - Low (hours):	96
Photolysis maximum light absorption - High (nano- m):	240
Photolysis maximum light absorption - Low (nano- m):	196
Photooxidation half- life air - High (hours):	22.7
Photooxidation half- life air - Low (hours):	2.37
First order hydrolysis half- life (hours):	2.47E+04
Acid rate constant [M(H+)- HR]- 1:	1.2E- 06M- 1
Base rate constant [MOH)- HR]- 1:	0.078 M- 1S

log#Kow#1.32

BOD 5 if unstated: 28%

COD: 1.71

ThOD: 1.92

Toxicity Fish: LC50(96)300-310mg/L

Toxicity invertebrate: cell mult. inhib.33-391mg/L

Effects on algae and plankton: cell mult. inhib. algae 7.6mg/L

Refer to data for ingredients, which follows:

HYDROQUINONE:

Environmental toxicity is a function of the n-octanol/ water partition coefficient (log Pow, log Kow). Phenols with log Pow >7.4 are expected to exhibit low toxicity to aquatic organisms. However the toxicity of phenols with a lower log Pow is variable, ranging from low toxicity (LC50 values >100 mg/l) to highly toxic (LC50 values <1 mg/l) dependent on log Pow, molecular weight and substitutions on the aromatic ring. Dinitrophenols are more toxic than predicted from QSAR estimates. Hazard information for these groups is not generally available.

Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters.

Wastes resulting from use of the product must be disposed of on site or at approved waste sites.

DO NOT discharge into sewer or waterways.

The material is classified as an ecotoxin* because the Fish LC50 (96 hours) is less than or equal to 0.1 mg/l

continued...

ETHYL ACRYLATE

GHS Safety Data Sheet

Version No:3

Page 17 of 17

Section 14 - TRANSPORTATION INFORMATION

Maritime Transport IMDG:

IMDG Class:	3	IMDG Subrisk:	None
UN Number:	1917	Packing Group:	II
EMS Number:	F- E, S- D		
Shipping name:ETHYL ACRYLATE, STABILIZED			

Section 15 - REGULATORY INFORMATION

REGULATIONS

ethyl acrylate (CAS: 140-88-5) is found on the following regulatory lists;
IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk
International Agency for Research on Cancer (IARC) Carcinogens
International Air Transport Association (IATA) Dangerous Goods Regulations
International Council of Chemical Associations (ICCA) - High Production Volume List
OECD Representative List of High Production Volume (HPV) Chemicals

Section 16 - OTHER INFORMATION

INGREDIENTS WITH MULTIPLE CAS NUMBERS

Ingredient Name	CAS
hydroquinone	123- 31- 9, 57534- 13- 1, 8027 - 02- 9

The above information is believed to be accurate and represent the best information currently available to us, but does not represent any warranty expressed or implied of the properties of the product. User should make their own investigation to determine the suitability of the information for their particular purpose.

Issue Date: 24-Jun-2018