

1. IDENTIFICATION OF THE SUBSTRATE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Trade name/designation: Caltech FCP

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

Relevant identified uses: Raw material for production of polyester roof waterproofing systems.

Recommended restrictions: SU22 Professional uses
SU3 Industrial uses

1.3 Supplier details

Alumasc Building Products Ltd
White House Works, Bold Road, Sutton, St Helens, Merseyside, United Kingdom, WA9 4JG
Tel: +44 (0)1744 648400
e-mail: technical@alumascroofing.com

1.4 Emergency telephone number

Association / Organisation: National Poisons Information Service
Emergency telephone numbers: 0344 892 0111 (Healthcare professionals only)
Other emergency telephone numbers Alumasc Building Products: +44 17 4464 8400
(Mon-Thurs – 08.30-17.00 Fri – 08.30-16.00)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classified according to GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567 [1]:

H226 - Flammable Liquids Category 3, H315 - Skin Corrosion/Irritation Category 2, H319 - Serious Eye Damage/Eye Irritation Category 2, H361d - Reproductive Toxicity Category 2, H372 - Specific Target Organ Toxicity - Repeated Exposure Category 1

2.2 Label elements

Hazard pictures:



Signal word:

Danger.

Hazard statements:

H226: Flammable liquid and vapour.
H315: Causes skin irritation.
H319: Causes serious eye irritation.
H361d :Suspected of damaging the unborn child.
H372: Causes damage to organs through prolonged or repeated exposure.
(Respiratory system, ears) (Inhalation)

Precautionary statements prevention:

P202: Do not handle until all safety precautions have been read and understood.
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233: Keep container tightly closed.
P260: Do not breathe mist/vapours/spray.

Precautionary statements response:

P308+P313 IF exposed or concerned: Get medical advice/ attention.
P370+P378 In case of fire: Use alcohol resistant foam or normal protein foam to extinguish.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P314 Get medical advice/attention if you feel unwell.

Precautionary statement(s) storage: P403+P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.

Precautionary statements disposal: P501: Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.

2.3 Other hazards

Styrene: Listed in the Europe Regulation (EC) No 1907/2006 - Annex XVII (Restrictions may apply).
Styrene: The material within this SDS meets the criteria for persistent, bioaccumulative and toxic in accordance with Annex XIII.

This substance/mixture does not meet the criteria for classification as Persistent, Bioaccumulative, and Toxic (PBT) in accordance with Annex XIII, Commission Delegated Regulation (EU) 2017/2100, and Commission Regulation (EU) 2018/605.

This substance/mixture does not meet the criteria for classification as very Persistent and very Bioaccumulative (vPvB) in accordance with Annex XIII, Commission Delegated Regulation (EU) 2017/2100, and Commission Regulation (EU) 2018/605.

This substance/mixture does not meet the criteria for classification as Persistent, Mobile and Toxic (PMT) in accordance with Commission Delegated Regulation (EU) 2023/707.

This substance/mixture does not meet the criteria for classification as very Persistent and very Mobile (vPvM) in accordance with Commission Delegated Regulation (EU) 2023/707.

The substance/mixture does not contain components considered to have endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605, nor is it included in the list established under REACH Article 59(1), at concentrations equal to or greater than 0.1% (w/w).

No further product hazard information.

3. COMPOSITION AND INFORMATION ABOUT THE COMPONENTS

3.1 Substances

See 'Composition on ingredients' in Section 3.2.

3.2 Mixtures

Ingredient	1. CAS No 2. EC No 3. Index No 4. REACH No	SCL / M-Factor	Classification (EC) 1272/2008	Nanoform Particle Characteristics	%[weight]
Styrene	1. 100-42-5 2. 202-851-5 3. 601-026-00-0 4. 01- 2119457861-32- xxxx	* Acute M factor: Not Applicable Chronic M factor: Not Applicable	Flammable Liquids Category 3, Skin Corrosion/Irritation Category 2, Serious Eye Damage/Eye Irritation Category 2, Acute Toxicity (Inhalation) Category 4, Reproductive Toxicity Category 2, Specific Target Organ Toxicity - Repeated Exposure Category 1; H226, H315, H319, H332, H361d, H372 [2]	Not available	15-25

Legend: 1. Classified by Chemwatch; 2. Classification drawn from GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567; 3. Classification drawn from C&L; * EU IOELVs available; [e] Substance identified as having endocrine disrupting properties.

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye contact:	If this product comes in contact with the eyes: 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.
Inhalation:	If fumes, aerosols 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, without delay.
Ingestion:	Immediately give a glass of water. First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11.

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

For acute or short term repeated exposures to Styrene:

Inhalation:	Severe exposures should have cardiac monitoring to detect arrhythmia. Catecholamines, especially epinephrine (adrenaline) should be used cautiously (if at all). Aminophylline and inhaled beta-two selective bronchodilators (e.g. salbutamol) are the drugs of choice for treatment of bronchospasm.
Ingestion:	Ipecac syrup should be given for ingestions exceeding 3ml (styrene)/kg. For patients at risk of aspiration because of obtundation, intubation should precede lavage. Pneumonitis is a significant risk. Watch the patient closely in an upright (alert patient) or left lateral head-down position (obtunded patient) to reduce aspiration potential. [Ellenhorn and Barceloux: Medical Toxicology].

BIOLOGICAL EXPOSURE INDEX – BEI:

These represent the determinants observed in specimens collected from a healthy worker who has been exposed at the Exposure Standard (ES or TLV):

Determinant	Index	Sampling Time	Comments
1. Mandelic acid in urine	800 mg/gm creatinine	End of shift	NS
	300 mg/gm creatinine	Prior to next shift	NS
2. Phenylglyoxylic acid in urine	240 mg/gm creatinine	End of shift	NS
	100 mg/gm creatinine	Prior to next shift	
3. Styrene in venous blood	0.55 mg/L	End of shift	SQ
	0.02 mg/L	Prior to next shift	SQ

NS: Non-specific determinant; also seen after exposure to other materials.

SQ: Semi-quantitative determinant - Interpretation may be ambiguous; should be used as a screening test or confirmatory test.

B: Background levels occur in specimens collected from subjects NOT exposed.

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Foam, Dry chemical powder, BCF (where regulations permit), Carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Fire Incompatibility:

Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result.

5.3 Advice for fire-fighters

Fire Fighting:

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.

Fire/explosion hazard:

Liquid and vapour are flammable.

Moderate fire hazard when exposed to heat or flame.

Vapour forms an explosive mixture with air.

Moderate explosion hazard when exposed to heat or flame.

Combustion products include:

- Carbon Monoxide (CO)
- Carbon Dioxide (CO₂)
- Other pyrolysis products typical of burning organic material.

Contains low boiling substance: Closed containers may rupture due to pressure buildup under fire conditions.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

See Section 8.

6.2 Environmental Precautions

See Section 12.

6.3 Methods and material for containment and cleaning up

Minor spills:

Remove all ignition sources.

Clean up all spills immediately.

Avoid breathing vapours and contact with skin and eyes.

Control personal contact with the substance, by using protective equipment.

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.

6.4 Reference to other sections

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

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Safe handling:

Containers, even those that have been emptied, may contain explosive vapours.
Do NOT cut, drill, grind, weld or perform similar operations on or near containers.

Contains low boiling substance:

Storage in sealed containers may result in pressure buildup causing violent rupture of containers not rated appropriately.
Check for bulging containers.

Vent periodically.

Always release caps or seals slowly to ensure slow dissipation of vapours.

Avoid all personal contact, including inhalation.

Wear protective clothing when risk of overexposure occurs.

Use in a well-ventilated area.

Prevent concentration in hollows and sumps.

DO NOT allow clothing wet with material to stay in contact with skin.

Fire and explosion protection:

See Section 5.

Other information:

Store in original containers in approved flammable liquid storage area.

Store away from incompatible materials in a cool, dry, well-ventilated area.

DO NOT store in pits, depressions, basements or areas where vapours may be trapped.

No smoking, naked lights, heat or ignition sources.

7.2 Conditions for safe storage, including any incompatibilities

Suitable container:

Packing as supplied by manufacturer.

Plastic containers may only be used if approved for flammable liquid.

Check that containers are clearly labelled and free from leaks.

For low viscosity materials (i) : Drums and jerry cans must be of the non-removable head type. (ii) : Where a can is to be used as an inner package, the can must have a screwed enclosure.

For materials with a viscosity of at least 2680 cSt. (23 deg. C)

For manufactured product having a viscosity of at least 250 cSt.

Storage incompatibility:

For alkyl aromatics:

The alkyl side chain of aromatic rings can undergo oxidation by several mechanisms. The most common and dominant one is the attack by oxidation at benzylic carbon as the intermediate formed is stabilised by resonance structure of the ring.

- Following reaction with oxygen and under the influence of sunlight, a hydroperoxide at the alpha-position to the aromatic ring, is the primary oxidation product formed (provided a hydrogen atom is initially available at this position) - this product is often short-lived but may be stable dependent on the nature of the aromatic substitution; a secondary C-H bond is more easily attacked than a primary C-H bond whilst a tertiary C-H bond is even more susceptible to attack by oxygen.
- Monoalkylbenzenes may subsequently form monocarboxylic acids; alkyl naphthalenes mainly produce the corresponding naphthalene carboxylic acids.
- Oxidation in the presence of transition metal salts not only accelerates but also selectively decomposes the hydroperoxides.
- Vigorous reactions, sometimes amounting to explosions, can result from the contact between aromatic rings and strong oxidising agents.
- Aromatics can react exothermically with bases and with diazo compounds.

WARNING:

May decompose violently or explosively on contact with other substances.

- This substance, or one of its components, is one of the relatively few compounds which are described as "endothermic" i.e. heat is absorbed into the compound, rather than released from it, during its formation.
- The majority of endothermic compounds are thermodynamically unstable and may decompose explosively under various circumstances of initiation.
- Many but not all endothermic compounds have been involved in decompositions, reactions and explosions and, in general, compounds with significantly positive values of standard heats of formation, may be considered suspect on stability grounds.
- Contamination with polymerisation catalysts - peroxides, persulfates, oxidising agents - also strong acids, strong alkalies, will cause polymerisation with exotherm - generation of heat.
- Polymerisation of large quantities may be violent - even explosive.

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

Styrene:

- Requires inhibition with adequate levels of substituted phenol (such as tert-butylcatechol to prevent polymerisation – material that has had inhibitor removed, e.g. is uninhibited, must be refrigerated and used within 24 hours, i.e. Not stored; contact with alkali solutions or glycols will remove inhibitor and render material unstable on storage .
- Polymerisation may cause container to explode.
- Polymerisation may be caused by elevated temperatures (above 66 deg c.), butyl lithium, peroxides, uv light, or sunlight.
- Reacts violently with chlorosulfonic acid, strong oxidisers, sulfuric acid, xenon tetrafluoride.
- Is incompatible with acids, rust, catalysts for vinyl polymerisation, 2,5-dimethyl-2,5-di(tert-butylperox)hexane, peroxides, metals salts (e.g., aluminium chloride, copper chlorate, manganese nitrate, etc).
- Corrodes copper and its alloys.
- Attacks some plastics, rubber or coatings.
- Flow or agitation may generate electrostatic charges due to low conductivity.
- Uninhibited monomer vapour may block vents and confined spaces by forming solid polymer.

Hazard categories in accordance with Regulation (EC) No 2012/18/EU (Seveso III)

P5a: Flammable Liquids, P5b: Flammable Liquids, P5c: Flammable Liquids

Qualifying quantity (tonnes) of dangerous substances as referred to in Article 3(10) for the application of

P5a Lower- / Upper-tier requirements: 10 / 50

P5b Lower- / Upper-tier requirements: 50 / 200

P5c Lower- / Upper-tier requirements: 5 000 / 50 000

7.3 Specific end use(s)

See Section 1.2.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Ingredient	DNELs Exposure Pattern Worker	PNECs Compartment
Styrene:	Dermal 406 mg/kg bw/day (Systemic, Chronic) Inhalation 85 mg/m ³ (Systemic, Chronic) Inhalation 100 mg/m ³ (Local, Chronic) Inhalation 100 mg/m ³ (Systemic, Acute) Inhalation 100 mg/m ³ (Local, Acute) Dermal 343 mg/kg bw/day (Systemic, Chronic) * Inhalation 1 mg/m ³ (Systemic, Chronic) * Oral 0.00772.1 mg/kg bw/day (Systemic, Chronic) * Inhalation 1 mg/m ³ (Local, Chronic) * Inhalation 10 mg/m ³ (Systemic, Acute) * Inhalation 10 mg/m ³ (Local, Acute) *	0.028 mg/L (Water (Fresh)) 0.014 mg/L (Water - Intermittent release) 0.04 mg/L (Water (Marine)) 0.418 mg/kg sediment dw (Sediment (Fresh Water)) 0.307 mg/kg sediment dw (Sediment (Marine)) 0.146 mg/kg soil dw (Soil) 5 mg/L (STP)

* Values for General Population.

Occupational Exposure Limits (OEL):

Ingredient data:

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
UK Workplace Exposure Limits (WELs)	Styrene	Styrene	100 ppm / 430 mg/m ³	1080 mg/m ³ / 250 ppm	Not available	Not available

8.2 Exposure controls

8.2.1. Appropriate engineering Controls:	Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection. The basic types of engineering controls are: Process controls which involve changing the way a job activity or process is done to reduce the risk.
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	Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.
8.2.2. Personal protection:	
Eye and face protection:	Safety glasses with side shields. Chemical goggles. [AS/NZS 1337.1, EN166 or national equivalent] Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task.
Skin protection:	See hand protection below.
Hands/feet protection:	Wear chemical protective gloves, e.g. PVC. Wear safety footwear or safety gumboots, e.g. Rubber. The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application. The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice. Personal hygiene is a key element of effective hand care.
Body protection:	See other protection below.
Other protection:	Employees working with confirmed human carcinogens should be provided with, and be required to wear, clean, full body protective clothing (smocks, coveralls, or long-sleeved shirt and pants), shoe covers and gloves prior to entering the regulated area. [AS/NZS ISO 6529:2006 or national equivalent] Employees engaged in handling operations involving carcinogens should be provided with, and required to wear and use half-face filtertype respirators with filters for dusts, mists and fumes, or air purifying canisters or cartridges. A respirator affording higher levels of protection may be substituted. [AS/NZS 1715 or national equivalent] Emergency deluge showers and eyewash fountains, supplied with potable water, should be located near, within sight of, and on the same level with locations where direct exposure is likely. Prior to each exit from an area containing confirmed human carcinogens, employees should be required to remove and leave protective clothing and equipment at the point of exit and at the last exit of the day, to place used clothing and equipment in impervious containers at the point of exit for purposes of decontamination or disposal. The contents of such impervious containers must be identified with suitable labels. For maintenance and decontamination activities, authorized employees entering the area should be provided with and required to wear clean, impervious garments, including gloves, boots and continuous-air supplied hood. Prior to removing protective garments the employee should undergo decontamination and be required to shower upon removal of the garments and hood. Overalls. PVC apron. PVC protective suit may be required if exposure severe. Eyewash unit. Some plastic personal protective equipment (PPE) (e.g. gloves, aprons, overshoes) are not recommended as they may produce static electricity. For large scale or continuous use wear tight-weave non-static clothing (no metallic fasteners, cuffs or pockets). Non sparking safety or conductive footwear should be considered. Conductive footwear describes a boot or shoe with a sole made from a conductive compound chemically bound to the bottom components, for permanent control to electrically ground the foot and shall dissipate static electricity from the body to reduce the possibility of ignition of volatile compounds.

Respiratory protection:	Type A Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent). Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content. The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate. Cartridge performance is affected by humidity. Cartridges should be changed after 2 hr of continuous use unless it is determined that the humidity is less than 75%, in which case, cartridges can be used for 4 hr. Used cartridges should be discarded daily, regardless of the length of time used.
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8.2.3. Environmental exposure controls

See Section 12.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Important health, safety and environmental information

Appearance:	Grey	Relative density (Water = 1):	1.41
Physical state:	Liquid	Partition coefficient n-octanol / water:	Not available
Odour:	Not available	Auto-ignition temperature (°C):	490
Odour threshold:	0.15ppm - 25 ppm Styrene	Decomposition temperature (°C):	Not available
pH (as supplied):	Not available	Viscosity (cSt):	1800 mPas- 3600 mPas @ 25°C
Melting point/freezing point (°C):	Not available	Molecular weight (g/mol):	Not available
Initial boiling point and boiling range (°C):	145°C	Taste:	Not available
Flash point (°C):	32°C (estimate)	Explosive properties:	Product is not explosive. However, formation of explosive air/vapour mixtures is possible
Evaporation rate [kg/(s m²)]:	12.4 BuAC = 1	Oxidising properties:	Not available
Flammability:	Flammable	Surface Tension (dyn/cm or mN/m):	Not available
Upper Explosive Limit (%):	6.1 %	Volatile Component (%vol):	Not available
Lower Explosive Limit (%):	1.1 %	Gas group:	Not available
Vapour pressure (kPa)	0.67	pH as a solution (1%):	Not available
Solubility in water	Immiscible	VOC g/L:	Not available
Vapour density (Air = 1)	3.6 (Air = 1)	Nanoform particle: Characteristics:	Not available
Nanoform Solubility	Not available	Enclosed Space Ignition Time Equivalent (s/m³)	Not Available
Particle Size	Not available	Enclosed Space Ignition Deflagration Density (g/m³)	Not Available

9.2 Other information

Not available.

10. STABILITY AND REACTIVITY

10.1 Reactivity

See Section 7.2.

10.2 Chemical stability

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

10.3 Possibility of hazardous reactions

See Section 7.2.

10.4 Conditions to avoid

See Section 7.2.

10.5 Incompatible materials

See Section 7.2.

10.6 Hazardous decomposition products

See Section 5.3.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

a) Acute Toxicity	Based on available data, the classification criteria are not met.
b) Skin Irritation/Corrosion	There is sufficient evidence to classify this material as skin corrosive or irritating.
c) Serious Eye Damage/Irritation	There is sufficient evidence to classify this material as eye damaging or irritating.
d) Respiratory or Skin sensitisation	Based on available data, the classification criteria are not met.
e) Mutagenicity	Based on available data, the classification criteria are not met.
f) Carcinogenicity	Based on available data, the classification criteria are not met.
g) Reproductivity	There is sufficient evidence to classify this material as toxic to reproductivity
h) STOT - Single Exposure	Based on available data, the classification criteria are not met.
i) STOT - Repeated Exposure	There is sufficient evidence to classify this material as toxic to specific organs through repeated exposure
j) Aspiration Hazard	Based on available data, the classification criteria are not met.

Inhaled:	Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be harmful. The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage. Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by sleepiness, reduced alertness, loss of reflexes, lack of co-ordination, and vertigo. Central nervous system (CNS) depression is seen at styrene exposures exceeding 50 ppm, whilst headache, fatigue, nausea and dizziness are seen consistently at exposures of 100 ppm. Evidence exists that at 100 ppm, 5-10% reductions in sensory nerve conductions occur, and after exposure to 50 ppm, there is slowing of reaction times. Central nervous system (CNS) depression may include general discomfort, symptoms of giddiness, headache, dizziness, nausea, anaesthetic effects, slowed reaction time, slurred speech and may progress to unconsciousness. Serious poisonings may result in respiratory depression and may be fatal. The acute toxicity of inhaled alkylbenzene is best described by central nervous system depression. These compounds may also act as general anaesthetics. Whole body symptoms of poisoning include light-headedness, nervousness, apprehension, a feeling of well-being, confusion, dizziness, drowsiness, ringing in the ears, blurred or double vision, vomiting and sensations of heat, cold or numbness, twitching, tremors, convulsions, unconsciousness, depression of breathing, and arrest. Heart stoppage may result from cardiovascular collapse.
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	The use of a quantity of material in an unventilated or confined space may result in increased exposure and an irritating atmosphere developing. Before starting consider control of exposure by mechanical ventilation.
Ingestion:	The material is not thought to produce adverse health effects following ingestion (as classified by EC Directives using animal models). Nevertheless, adverse systemic effects have been produced following exposure of animals by at least one other route and good hygiene practice requires that exposure be kept to a minimum. Styrene is absorbed into the body following oral or inhalation exposure. Its metabolites include styrene oxide, styrene glycol, mandelic acid, benzoic acid, hippuric acid, phenyl glyoxylic acid and possibly vinyl phenol. It is detectable in liver, kidney, pancreas, expired air, urine and faeces in the body. Central nervous system (CNS) depression may include general discomfort, symptoms of giddiness, headache, dizziness, nausea, anaesthetic effects, slowed reaction time, slurred speech and may progress to unconsciousness. Serious poisonings may result in respiratory depression and may be fatal.
Skin Contact:	The material may accentuate any pre-existing dermatitis condition Styrene has been showed to be absorbed less through the skin than via the airways. The material may cause moderate inflammation of the skin either following direct contact or after a delay of some time. Repeated exposure can cause contact dermatitis which is characterised by redness, swelling and blistering.
Eye:	There is evidence that material may produce eye irritation in some persons and produce eye damage 24 hours or more after instillation. Severe inflammation may be expected with pain.
Chronic:	Long-term exposure to respiratory irritants may result in airways disease, involving difficulty breathing and related whole-body problems. Strong evidence exists that this substance may cause irreversible mutations (though not lethal) even following a single exposure. There is ample evidence that this material can be regarded as being able to cause cancer in humans based on experiments and other information. Toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed. This material can cause serious damage if one is exposed to it for long periods. It can be assumed that it contains a substance which can produce severe defects. Ample evidence exists from experimentation that reduced human fertility is directly caused by exposure to the material. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. Exposure to styrene may aggravate central nervous system disorders, chronic respiratory disease, skin disease, kidney disease and liver disease. Exposure to styrene at work causes effects on the nervous system.

Caltech FCP Resin:

Toxicity	Irritation
Not available	Not available

Styrene:

Toxicity	Irritation
Dermal (Rat) LD50: >2000 mg/kg ^[1]	Eye (Human): 50ppm - Mild
Inhalation(Mouse) LC50; 9.5 mg/L4h ^[2]	Eye (Rodent - rabbit): 100mg - Severe
Oral(Mouse) LD50; 316 mg/kg ^[2]	Eye (Rodent - rabbit): 100mg/24H - Moderate
	Skin (Human): 500mg
	Skin (Rodent - rabbit): 100% - Moderate
	Skin (Rodent - rabbit): 500mg - Mild

Legend:

1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances.

Caltech FCP Resin:	Laboratory (in vitro) and animal studies show, exposure to the material may result in a possible risk of irreversible effects, with the possibility of producing mutation. Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on
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	lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia. Data demonstrate that during inhalation exposure, aromatic hydrocarbons undergo substantial partitioning into adipose tissues. Following cessation of exposure, the level of aromatic hydrocarbons in body fats rapidly declines. Thus, the aromatic hydrocarbons are unlikely to bioaccumulate in the body. Selective partitioning of the aromatic hydrocarbons into the non-adipose tissues is unlikely.
Styrene:	The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin. WARNING: This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans.

Acute Toxicity	✗	Carcinogenicity	✗
Skin Irritation/Corrosion	✓	Reproductivity	✓
Serious Eye Damage/Irritation	✓	STOT - Single Exposure	✗
Respiratory or Skin Sensitisation	✗	STOT - Repeated Exposure	✓
Mutagenicity	✗	Aspiration Hazard	✗

Legend:

- ✗ - Data either not available or does not fill the criteria for classification.
✓ - Data available to make classification.

11.2 Additional information

11.2.1 Endocrine Disruption Properties

No evidence of endocrine disrupting properties were found in the current literature.

11.2.2 Other Information

See Section 11.1

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Caltech FCP Resin:

End point	Test duration (Hr)	Species	Value	Source
Not available	Not available	Not available	Not available	Not available

Styrene:

End point	Test duration (Hr)	Species	Value	Source
EC50	72h	Algae or other aquatic plants	1.4mg/l	1
EC50	48h	Crustacea	4.7mg/l	1
NOEC(ECx)	96h	Algae or other aquatic plants	0.063mg/l	1
EC50	96h	Algae or other aquatic plants	0.72mg/l	1
LC50	96h	Fish	3.29-5.05mg/l	4

Legend:

Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data.

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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.

For Aromatic Substances Series:

Environmental Fate: Large, molecularly complex polycyclic aromatic hydrocarbons, or PAHs, are persistent in the environment longer than smaller PAHs.

Atmospheric Fate: PAHs are 'semi-volatile substances' which can move between the atmosphere and the Earth's surface in repeated, temperature-driven cycles of deposition and volatilization. Terrestrial Fate: BTEX compounds have the potential to move through soil and contaminate ground water, and their vapors are highly flammable and explosive.

Ecotoxicity - Within an aromatic series, acute toxicity increases with increasing alkyl substitution on the aromatic nucleus.
For styrene:

Transport: Styrene is expected to volatilise from surface waters, and is also removed from waters by adsorption onto soils and sediments. Under certain conditions, styrene may leach through soil (particularly sandy soils) and enter ground water.

Transformation/Persistence: Air - In the atmosphere, styrene reacts with both hydroxyl radicals and ozone with estimated half-lives of 3.5 and 9 hours, respectively. The chemical is also degraded in the presence of NOX and natural sunlight.

Substances containing unsaturated carbons are ubiquitous in indoor environments. They result from many sources (see below). Most are reactive with environmental ozone and many produce stable products which are thought to adversely affect human health. The potential for surfaces in an enclosed space to facilitate reactions should be considered.

Source of unsaturated substances Unsaturated substances (Reactive Emissions) Major Stable Products produced following reaction with ozone.

DO NOT discharge into sewer or waterways.

12.2 Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
Styrene	HIGH (Half-life = 210 days)	LOW (Half-life = 0.3 days)

12.3 Bioaccumulation potential

Ingredient	Bioaccumulation
Styrene	LOW (BCF = 77)

12.4 Mobility in soil

Ingredient	Mobility
Styrene	LOW (KOC = 517.8)

12.5 Results of PBT and vPvB assessment

	P	B	T	PBT criteria fulfilled?	vP	vB	vPvB criteria fulfilled?
Caltech FCP Resin	No data available	No data available	No data available	No	No data available	No data available	No
Styrene	✓	✓	✓	No	✗	✗	No

12.6 Endocrine Disruption Properties

Not available.

12.7 Other adverse effects

Not available.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Disposal Considerations:	Disposal of this product and its packaging must comply with all applicable environmental protection and waste disposal legislation, including any requirements set by local authorities. Any unwanted or non-recyclable material should be disposed of through a licensed waste disposal contractor. Transportation of such waste may be subject to ADR (International Carriage of Dangerous Goods by Road) regulations and must be managed in accordance with those requirements.
Waste code:	Uncured product: 08 01 11* waste paint and varnish containing organic solvents or other hazardous substances. Cured product inert residue: 17 09 04 mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03 Empty metal paint tins with only hardened, inert residue: 15 01 04 metallic packaging
Special precautions:	This material and its container must be disposed of in a safe way. Caution should be exercised when handling empty containers that have not been properly cleaned or rinsed, as they may retain hazardous residues. Spillage and wash water from cleaning tools must be

	prevented from entering soil, watercourses, drains, or sewer systems. Empty containers should be directed to authorised waste disposal or appropriate local recycling facilities.
Further information available via:	https://www.alumascroofing.com/downloads/disposal-guides/ 

14. TRANSPORT INFORMATION

Labels required:



Marine Pollutant: No.

Hazchem: ●3Y; ●3YE

Land transport (ADR-RID):

14.1 UN number	1263
14.2 UN proper shipping name	PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning or reducing compound)
14.3 Transport hazard class(es)	Class: 3 Subrisk: Not applicable
14.4 Packing group	III Note: Due to its relatively high viscosity this material can be considered non-hazardous in accordance to ADR 2.2.3.1.5 when packed in receptacles of less than 450 litres.
14.5 Environmental hazard	Not applicable
14.6 Special precautions for user	Hazard identification (Kemler): Not Applicable Classification code: F1 Hazard label: 3 Special provisions: 163 367 650 Limited quantity: 5 L Transport Category: 3 tunnel restriction code: E

Air transport (ICAO-IATA/DGR):

14.1 UN number	1263
14.2 UN proper shipping name	Paint (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base)
14.3 Transport hazard class(es)	ICAO/IATA class: 3 ICAO/IATA subrisk: Not applicable ERG code: 3 L
14.4 Packing group	III
14.5 Environmental hazard	Not applicable
14.6 Special precautions for user	Special provisions: A3 A72 A192 Cargo only packing instruction: 361 Cargo only maximum qty/pack: 30 L Passenger and cargo packing instruction: 351 Passenger and cargo maximum qty/pack: 1 L Passenger and cargo limited qty packing instructions: Forbidden Passenger and cargo limited maximum qty/pack: Forbidden

Sea transport (IMDG-Code/GGVSee):

14.1 UN number	1263
14.2 UN proper shipping name	PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 110 kPa)
14.3 Transport hazard class(es)	IMDG class: 3 IMDG subrisk: Not applicable
14.4 Packing group	III Note: Due to its relatively high viscosity, and in accordance with section 2.3.2.5 of the IMDG code, this material is not subject to the provisions for marking, labelling and testing of packages, when packed in receptacles of no greater than 30 litres.
14.5 Environmental hazard	Not applicable
14.6 Special precautions for user	EMS number: F-E, S-E Special provisions: 163 367 Limited quantities: 5 L

Inland waterways transport (ADN):

14.1 UN number	1263
14.2 UN proper shipping name	PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 110 kPa)
14.3 Transport hazard class(es)	3 Not applicable
14.4 Packing group	III
14.5 Environmental hazard	Not applicable
14.6 Special precautions for user	Classification code: F1 Special provisions: 163; 367; 640C; 640D; 650 Limited quantity: 5 L Equipment required: PP, EX, A Fire cones numbers: 1

14.7 Transport in bulk according to Annex II of MARPOL and the IBC code

Not applicable.

14.8 Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

Product Name	Group
Styrene	Not available

14.9 Transport in bulk in accordance with the ICG Code

Product Name	Ship Type
Styrene	Not available

15. REGULATORY INFORMATION

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

Styrene is found on the following regulatory lists:

Chemical Footprint Project - Chemicals of High Concern List
EU Regulation (EC) No 1223/2009 of the European Parliament and of the Council of 30 November 2009 on cosmetic products - Annex II - List of Substances Prohibited in Cosmetic Products
EU REACH Regulation (EC) No 1907/2006 - Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles
Europe EC Inventory
Europe European Customs Inventory of Chemical Substances- ECICS
European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)
European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI (ATP21)
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 2A: Probably carcinogenic to humans

This safety data sheet is in compliance with the following EU legislation and its adaptations - as far as applicable: Directives 98/24/EC, - 92/85/EEC, - 94/33/EC, - 2008/98/EC, - 2010/75/EU; Commission Regulation (EU) 2020/878; Regulation (EC) No 1272/2008 as updated through ATPs.

15.2 Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

ECHA SUMMARY

Ingredient	CAS number	Index No	ECHA Dossier
styrene	100-42-5	601-025-00-0	01-2119457861-32-xxxx

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Flammable Liquids Category 3; Aspiration Hazard Category 1; Skin Corrosion/Irritation Category 2; Serious Eye Damage/Eye Irritation Category 2; Acute Toxicity (Inhalation) Category 4; Hazardous to the Aquatic Environment Long-Term Hazard Category 3	GHS02; GHS08; Dgr	H226; H304; H315; H319; H332; H335; H372; H412
2	Flammable Liquids Category 3; Aspiration Hazard Category 1; Skin Corrosion/Irritation Category 2; Serious Eye Damage/Eye Irritation Category 2; Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3; Specific Target Organ Toxicity - Repeated Exposure Category 1; Hazardous to the Aquatic Environment Long-Term Hazard Category 3; Carcinogenicity Category 2; Acute Toxicity (Oral) Category 3; Germ Cell Mutagenicity Category 2; Reproductive Toxicity Category 1B; Specific Target Organ Toxicity - Single Exposure Category 1	GHS08; GHS02; Dgr; GHS06; GHS04	H226; H304; H315; H319; H335; H372; H412; H351; H302; H331; H341; H360; H370; H312

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

National inventory status:

National Inventory	Status
Australia - AIIC / Australia Non-Industrial Use	Yes
Canada - DSL	Yes
Canada - NDSL	No (Styrene)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	Yes
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	Yes
USA - TSCA	All chemical substances in this product have been designated as TSCA Inventory 'Active'
Taiwan - TCSI	Yes
Mexico - INSQ	Yes
Vietnam - NCI	Yes
Russia - FBEPH	Yes
UAE - Control List (Banned/Restricted Substances)	No (styrene)
Legend:	Yes = All CAS declared ingredients are on the inventory.

	No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.
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16. OTHER INFORMATION

Full text risk and hazard codes:

H332: Harmful if inhaled.

SDS version summary:

Version	Date of Update	Section Updated
1.1	14/06/2023	Template Change
2.0	27/05/2025	Section 13 update
3.0	05/05/2026	Toxicological information - Acute Health (skin), Hazards identification - Classification, Composition / information on ingredients - Ingredients

Full text Risk and Hazard codes

H302 Harmful if swallowed.
H304 May be fatal if swallowed and enters airways.
H312 Harmful in contact with skin.
H331 Toxic if inhaled.
H332 Harmful if inhaled.
H335 May cause respiratory irritation.
H341 Suspected of causing genetic defects.
H351 Suspected of causing cancer.
H360 May damage fertility or the unborn child.
H370 Causes damage to organs.
H412 Harmful to aquatic life with long lasting effects.

Other information:

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

For detailed advice on Personal Protective Equipment, refer to the following EU CEN Standards:

EN 166 Personal eye-protection
EN 340 Protective clothing
EN 374 Protective gloves against chemicals and micro-organisms
EN 13832 Footwear protecting against chemicals
EN 133 Respiratory protective devices

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
ES: Exposure Standard
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
AII: Australian Inventory of Industrial Chemicals
DSL: Domestic Substances List

NDSL: Non-Domestic Substances List
IECSC: Inventory of Existing Chemical Substance in China
EINECS: European INventory of Existing Commercial chemical Substances
ELINCS: European List of Notified Chemical Substances
NLP: No-Longer Polymers
ENCS: Existing and New Chemical Substances Inventory
KECI: Korea Existing Chemicals Inventory
NZIoC: New Zealand Inventory of Chemicals
PICCS: Philippine Inventory of Chemicals and Chemical Substances
TSCA: Toxic Substances Control Act
TCSI: Taiwan Chemical Substance Inventory
INSQ: Inventario Nacional de Sustancias Químicas
NCI: National Chemical Inventory
FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]

Classification according to regulation (EC) No 1272/2008 [CLP] and amendments	Classification Procedure
Flammable Liquids Category 3, H226	On basis of test data
Skin Corrosion/Irritation Category 2, H315	Calculation method
Serious Eye Damage/Eye Irritation Category 2, H319	Calculation method
Reproductive Toxicity Category 2, H361d	Calculation method
Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3, H335	Calculation method

The contents and format of this SDS are in accordance with EEC Commission Directive 1999/45/EC, 67/548/EC, 1272/2008/EC and EEC Commission Regulation 1907/2006/EC (REACH) Annex II.

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