

Revision 1      Date Issued: 03/02/2014

### 1. Identification of the substance/preparation and company

**Product Name:**      **Flowchem VE Resin (all resins)**

This data sheet covers the resin components for the Flowchem range, Flowchem VE RC, GL, H-05 etc. including the Flowchem VE Primers.

**NB:**      Please note this does not infer the resin component of one product is interchangeable with any other product.

**Application:**      Epoxy vinyl ester resin, component of a multi-pack coating system.  
Mixed product is applied by roller and/or spray.

**Manufacturer:**

Flowcrete SA (Pty) Ltd, 176 Voortrekker Street, Jacobs 4052

Tel: +27 (0)31 461 3411

Fax: +27 (0)31 461 3475

E-mail: southafrica@flowcrete.com

Website: <http://www.flowcretesa.co.za>

### 2. Composition/information on constituents

Chemical Name	EINECS No.	CAS No.	% by weight	Symbols and Risk Phrases
Styrene	202-851-5	100-42-5	30 – 50	Xn; Xi; R10. R20. R36/38.

Also contains vinyl ester resin, pigments, surfactants and additives.

See section 16 Additional information, for full text regarding symbols and Risk phrases.

### 3. Hazards Identification

**Flammable.      Harmful by inhalation.      Irritating to eyes and skin.**

Vapours can build explosive mixtures in air. Explosion risk with heating to temperatures above 50 °C.

When the base is mixed with the hardener a very exothermic reaction starts (i.e. much heat is generated).

The product should be applied immediately after mixing.

If the mix is not applied within 10 - 20 minutes copious amounts of acrid smoke will be generated.

### 4. First Aid measures

**General advice**      :      Remove any contaminated clothing immediately.  
Symptomatic treatment is advised to the physician.

**Inhalation**                :      Remove affected person from exposure, keep them warm and at rest.  
Obtain immediate medical attention. Oxygen or artificial respiration if there is difficulty in breathing.

**Skin contact**            :      Wash with soap and plenty of water or a suitable skin cleanser as soon as possible.  
Seek medical advice if rash develops. Launder clothes before reuse.

**Eye Contact**            :      Rinse immediately and for at least 15 minutes with plenty of water. Hold eyelids apart and carefully and thoroughly flush with plenty of water. Always seek medical advice.

**Ingestion**                :      If the person is conscious, wash out mouth with water. Do not swallow mouth wash.  
Do not induce vomiting. Seek immediate medical attention.

Note to physician:

The decision of whether to induce vomiting or not should be made by a physician.

If lavage is performed, suggest endotracheal and/or oesophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. No specific antidote.

Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

## 5. Fire-fighting measures

- Suitable extinguishing media** : Water spray, carbon dioxide (CO<sub>2</sub>), dry powder or foam. General purpose synthetic foams(including AFFF type) or protein foams are preferred if available.
- Un-Suitable extinguishing media** : High volume water jet.
- Special exposure hazards** : Resin decomposes under heating. In case of a fire, do not breathe fumes.
- Hazardous decomposition / combustion products** : The smoke may contain polymer fragments of varying compositions in addition to unidentified toxic and/or irritating compounds. Combustion products may include (and are not limited to) carbon dioxide (CO<sub>2</sub>), carbon monoxide (CO).
- Special protective equipment** : Wear self-contained breathing apparatus and protective suit.
- Specific fire or explosion hazards** : Dense smoke is produced when the product burns.  
Violent steam generation or eruption may occur upon application of direct water stream.  
Product vapours are heavier than air and may travel a long distance and accumulate in low lying areas.  
Ignition and/or flashback may occur.  
Flammable mixtures may exist within the vapour space of containers at room temperatures.  
Flammable concentrations of vapour can accumulate at temperatures above 23°C.  
Spills of the product on hot fibrous insulations may lead to a lowering of the autoignition temperature, possibly resulting in spontaneous combustion.
- Additional information** : Cool closed containers with water spray.  
Do not allow contaminated extinguishing water to enter the soil, drains, sewers or water courses.

## 6. Accidental release measures

- Personal precautions** : Ensure all sources of ignition are removed, no smoking.  
Use personal protective equipment as detailed in Section 8.  
Ensure adequate ventilation, do not breathe vapours. Clear the area of non-essential personnel and, if a major spillage, warn public of downwind explosion hazard.
- Environmental precautions** : Prevent further leakage or spillage and prevent entry into drains, sewers and water courses.
- Methods for cleaning up** : Soak up with inert absorbent material (e.g. sand.)  
Transfer into suitable open-top containers, and keep in a safe, well ventilated area.  
Dispose in accordance with Section 13. Residual can be removed with solvent.  
Solvents may only be used for cleanup when the recommended exposure guidelines and safe handling practices for the specific solvents are followed.

## 7. Handling and storage

- Handling** : Ensure adequate ventilation, provide exhaust ventilation in work area.  
Electrically ground all equipment.  
All non-essential personnel to be excluded from area.  
The air should be drawn away from the personnel handling the product.  
  
Use personal protective equipment as detailed in Section 8.  
Handle and open container with care. Avoid skin and eye contact.  
  
Containers, even those that have been emptied, can contain flammable vapours.  
Do not cut, grind, drill or weld - or perform similar operations on or near containers.
- Fire and explosion protection** : Use explosion protected equipment.  
It is recommended to use electrical equipment of temperature group T3 – maximum permitted surface temperature of electrical equipment 200°C.  
Keep away from sources of ignition – NO smoking in the vicinity.

**Storage** : Store in a dry, cool, well-ventilated place away from sources of heat and direct sunlight.  
Protect from frost. Keep only in the original container, tightly closed.  
Maintain store between temperatures 5 - 25 °C.  
Keep container upright to prevent leakage. Keep separate from food and drinks.

## 8. Exposure controls/personal protection

### Workplace Exposure Limit (WEL) :

Styrene 430 mg/m<sup>3</sup> (100 ppm) 8 hour Time Weighted Average (TWA),  
1080 mg/m<sup>3</sup> (250 ppm) 15 minute Short Term Exposure Limit (STEL)

**Engineering measures to reduce exposure** : Forced extraction is required, especially in confined areas and when spraying.

### Personal protective equipment :

**Respiratory protection** : Required in insufficiently ventilated working areas (especially during mixing and always if sprayed). Use an approved positive-pressure self-contained breathing apparatus (air fed hood), or for short periods of work, a combination of charcoal filter and particulate filter respirator.  
Where the exposure limit may be exceeded, always use approved positive-pressure self-contained breathing apparatus.

**Eye protection** : Goggles or full face mask.  
An eye wash station should be located in the immediate work area.

**Hand protection** : Impermeable gloves (Gloves made from ethyl vinyl alcohol, polyvinyl alcohol and vinylidene fluoride / hexafluoropropylene have shown better resistance to styrene than those made from butyl rubber, polyvinylchloride or nitrile).  
Check regularly for degradation and replace as necessary.

**Skin and body protection** : Protective suit and heavy duty work shoes.

**Protective measures** : Handle in accordance with good industrial hygiene and safety practice.  
Wash hands before breaks and immediately after handling the product.  
When using do not eat, drink or smoke. Launder clothes before re-use.

## 9. Physical and chemical properties

Appearance	: Viscous yellow liquid.	Relative Density	: 1.0 – 1.255
Odour	: Pungent, styrene	Water solubility	: insoluble
Odour threshold	: 0.32 ppm	Autoignition temperature	: 490°C
Vapour density	: 3.6 (styrene) [Air = 1] (highest known value)	Explosion limits	- Lower limit : 1.1% v/v (styrene) - Upper limit : 8 % v/v (styrene)
Vapour pressure	: 5 mm Hg (21°C), styrene	Flashpoint	: 32°C

## 10. Stability and reactivity

This product is unstable at elevated temperatures (> 50 °C).  
Styrene can be smelled at very low concentrations (0.32 ppm).

**Conditions to avoid** : Do not store in direct sunlight. Avoid temperatures above 50°C.  
Protect from frost, material may crystallise if subjected to low temperatures (below 0°C).

**Materials to avoid** : Peroxides. Oxidising agents. Metal salts, such as ferric and aluminium chloride.

**Hazardous decomposition products** : Refer to Section 5 of this data sheet.

**Hazardous polymerisation** : Hazardous polymerisation may occur.  
Avoid depletion of inhibitor levels and the conditions and materials listed above.

## 11. Toxicological information

- Acute toxicity** : LD<sub>50</sub> Oral (rat) : 2,000 mg/kg  
LC<sub>50</sub> Inhalation (rat, 4 hrs) : 12 mg/l
- Inhalation** : Vapour concentrations are attainable and could be hazardous on single exposure.  
Excessive exposure may cause irritation to upper respiratory tract (nose and throat).  
Excessive exposure may cause narcotic and / or anaesthetic effects.
- Skin contact** : Prolonged skin contact is unlikely to result in absorption of harmful amounts.  
LD<sub>50</sub> Dermal (rabbit) : > 2,000 mg/kg (estimate)
- Irritation** : Skin - Prolonged or repeated exposure is not likely to cause significant skin irritation.  
Material may stick to skin causing irritation upon removal.
- Eyes - May cause moderate irritation with corneal injury.  
Vapours may cause eye irritation, experienced as mild discomfort and redness.  
Vapours may cause lachrymation (tears).
- Sensitisation** : No sensitising effects known.
- Carcinogenicity** : A recent inhalation study on styrene (with mice) has shown an increased incidence of lung tumours. The relevance to humans is uncertain, as data from other long-term animal studies and from epidemiology studies of workers exposed to styrene do not provide a basis for classifying styrene as carcinogenic.
- The IARC (International Agency for Research into Cancer) has classified styrene as Group 2B, possibly carcinogenic to humans.
- Mutagenicity** : No evidence known to us that this product is mutagenic.
- Reproductive toxicity** : In laboratory animals, styrene did not produce birth defects or any other effects on the foetus even at exposure concentrations having adverse effects on the mother.  
In animal studies styrene did not interfere with reproduction.
- Further information** : Repeated excessive exposure to high amounts may cause effects on the central nervous system, liver and kidneys, plus respiratory and / or eye irritation.  
Some studies in humans allege that repeated exposure to styrene may result in minor, subclinical decreases in the ability to discriminate between colours.  
Lung effects have been observed in mice following repeat exposure to styrene.  
Styrene is reported to have caused hearing loss in laboratory animals upon exposure to high concentrations (>800 ppm); however, relevance of this to humans is unknown.

## 12. Ecological information

- Ecotoxicity** : Styrene: LC<sub>50</sub> (96 hours, fish) : 9 – 75 mg/l  
EC<sub>50</sub> (48 hours daphnia magna) : 23 mg/l
- Mobility** : Potential for mobility in soil is low, K<sub>oc</sub> 500 – 2000.
- Persistence and degradability** : Styrene: 71% (28 days, OECD)  
Degradation of vapour in the atmosphere expected within minutes to hours.
- Additional ecological information** : Styrene: Log K<sub>ow</sub> = 2.95 BCF =74

## 13. Disposal considerations

- Unused Product/waste from cleaning etc.** : Dispose of in accordance with local and national regulations (most probably controlled incineration).  
Do not empty into drains, sewers or water courses.

EC Waste Catalogue (EWC) code: 08 01 11  
[Waste products from the Manufacture, Formulation, Supply and Use (MFSU) of paint and varnish. Waste paint and varnish containing organic solvents or other dangerous substances.]

**Contaminated packaging** : Untreated contaminated packaging to be disposed of as for unused product.

Empty containers can be landfilled after cleaning (complete removal of all residues adhering to container walls), when in compliance with the Environmental Protection (Duty of Care) Regulations 1991.  
Remove/invalidate the warning label.

## 14. Transport information

**Proper shipping name:** Resin Solution  
**UN No:** 1866

### ADR/RID

<b>Class</b>	: 3	<b>Classification Code</b>	: F1
<b>HI No</b>	: 30	<b>Packing Group</b>	: III
<b>Contains</b>	: Styrene		

### IMO

<b>Class</b>	: 3	<b>Marine Pollutant</b>	: No
<b>Packing Group</b>	: III		
<b>Contains</b>	: Styrene		

### IATA

<b>Class</b>	: 3	<b>Packing Group</b>	: III
<b>Contains</b>	: Styrene		

## 15. Regulatory information

**Classification according to EEC directive:**

**Symbols:**



Harmful

### R-phrases

<b>R10</b>	: Flammable
<b>R20</b>	: Harmful by inhalation.
<b>R36/38</b>	: Irritating to eyes and skin.

### S-phrases

<b>S23</b>	: Do not breathe vapour.
<b>S36/37/39</b>	: Wear suitable protective clothing, gloves and eye/face protection.
<b>S51</b>	: Use only in well ventilated areas.

**Special provisions statement** : None.

**Hazardous component(s) which must be listed on the label** : Styrene.

**EC Directives:** Dangerous Substances Directive, 67/548/EEC & adaptations.  
Dangerous Preparations Directive, 1999/45/EC.  
Safety Data Sheets Directive, 91/155/EEC and adaptations.

**Statutory Instruments:** Chemicals (Hazard Information & Packaging for Supply) Regs 2002.  
Control of Substances Hazardous to Health Regs 2002.  
Environmental Protection (Duty of Care) Regs. 1991.

<b>Codes of Practice</b>	Waste Management. The Duty of Care. Approved classification and labelling guide (Fifth edition). L131. The compilation of safety data sheets (Third edition).
<b>Guidance Notes</b>	Occupational Exposure Limits EH40 CHIP for Everyone HSG(108)

## **16. Other Information**

This safety data sheet has been prepared in accordance with CHIP3. The provision of Safety data sheets comes under Regulation 6 of CHIP (CHIP is the recognised abbreviation for the Chemicals, Hazard Information and Packaging Regulations). This is in addition to the Health and Safety at Work Act 1974.

Users of our products should take appropriate measures to ensure working practices are in accordance with the Control of Substances Hazardous to Health Regulations (COSHH).

This data sheet does not replace the obligation of the user to provide their own assessment of workplace risk as required by other Health & Safety legislation.

EC Directive relating to the classification, packaging and labelling of dangerous substances and preparations – Classification(s) and Risk (R) phrase(s) referred to in this document:-

Xi : Irritant                                      Xn : Harmful

R10                 : Flammable.  
R20                 : Harmful by inhalation.  
R36/38            : Irritating to eyes and skin.

### **Training Advice**

Applicators need to be trained in:-  
Handling and hygiene associated with use of industrial chemicals.  
Correct mixing and application of the product.  
Correct cleaning and disposal methods.

### **Restrictions on Use**

The product is only intended for use by appropriately trained applicators in industrial situations. It is not suitable for use in home DIY applications, especially because of its hazardous nature and the protective measures required.

### **Notes**

Do not use organic solvents for skin cleansing, it will lead to defatting of the skin, skin irritation and/or dermatitis.  
Some solvents can be absorbed through the skin.  
Beware of cross contamination where different products are in use in the same location.  
Take into account the Manual Handling regulations when dealing with the mixed product.

This safety data sheet is based on our present knowledge and experience and is intended to serve as a guide for safe handling of the product regarding to health and environmental aspects.