Revision 1 Date Issued: January 2015
Flowcrete Corrosion Protection Division

1. Identification of the substance/preparation and company

Product Name: **FLOWCHEM VE Curing Agent**

Application: Organic peroxide component of a vinylester resin coating.
Mixed product is applied by roller and/or spray.

Manufacturer:
Flowcrete SA (Pty) Ltd 176 Voortrekker Street, Jacobs, Durban
Tel: +27 31 461 3411 Fax: +27 31 461 3475
E-mail: southafrica@flowcrete.co.za Website: http://www.flowcretesa.co.za

2. Composition/information on constituents

Chemical Name	EINECS No.	CAS No.	% by weight	Symbols and Risk Phrases
Methyl ethyl ketone peroxide	215-661-2	1338-23-4	30 - 40	E; C; R2. R7. R22. R34.
Dimethyl phthalate	205-011-6	131-11-3	55 - 70	none
Methyl ethyl ketone (MEK) [Synonym: Butan-2-one, 2-Butanone]	201-159-0	78-93-3	~5	F; Xi; R11. R36. R66. R67.

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

3. Hazards Identification

May cause fire.
Harmful if swallowed.
Causes burns. Risk of serious damage to eyes, causes injury to the cornea and eyelids.

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.
Always seek medical advice. Launder clothes before reuse.

Eye Contact : Rinse immediately and for as long as possible 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.

5. Fire-fighting measures

Suitable extinguishing media : Carbon dioxide (CO_2), foam, dry powder or sand.
Water spray should be used for larger fires.

Un-Suitable extinguishing media : High volume water jet. Halones.

Special exposure hazards : **CAUTION:** Reignition may occur.
Decomposes under heating. If involved in a fire, product will support combustion.
In case of a fire or explosion do not breathe fumes.

Hazardous decomposition / combustion products : Carbon dioxide (CO_2), acetic acid, formic acid, propanoic acid, methyl ethyl ketone (MEK).

Special protective equipment : Wear self-contained breathing apparatus and protective suit.

Additional information : Extinguish a small fire with powder or carbon dioxide, then apply water to prevent re-ignition.
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 : Use personal protective equipment as detailed in Section 8.
Ensure adequate ventilation. If a major spillage (an area greater than 2 square metres), clear the area of non-essential personnel.

Environmental precautions : Prevent further leakage or spillage and prevent entry into drains, sewers and water courses.

It is an offence to discharge effluent down the drain without prior consent from the appropriate authority. Check where the drain chosen for disposal goes. If it goes to a watercourse, check that disposal of the spillage will comply with the Environmental Agency or SEPA consent. If it goes to the sewer, check the consent issued by the sewerage authority.

If washing the spillage to drain will breach a consent condition, dispose of in another way. Make sure the disposal site is licensed to accept this type of waste.

Methods for cleaning up : Soak up with inert absorbent material (e.g. sand, sawdust) wetted out with water.
Leave for 30 minutes.
Transfer into suitable open-top containers, do not close container and keep in a safe, well ventilated area.
Dispose in accordance with Section 13. Wash the area with plenty of water.

7. Handling and storage

Handling : Ensure adequate ventilation, provide exhaust ventilation in work area.

If sprayed, exhaust ventilation is required and all other 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.

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.
Keep only in the original container, tightly closed.
Maintain store between temperatures 5 - 25 °C. Keep container upright to prevent leakage.

8. Exposure controls/personal protection

Occupational Exposure Standards (OES) :

	8 hour Time Weighted Average (TWA)	15 minute Short Term Exposure Limit (STEL)
Methyl ethyl ketone peroxide	1.5 mg/m^3 (0.2 ppm)	-
Butan-2-0ne (Methyl ethyl ketone)	600 mg/m^3 (200 ppm) (IOELV, Sk, Bmgv, CD156)	899 mg/m^3 (300 ppm)
Dibutyl phthalate	5.0 mg/m^3	10.0 mg/m^3

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). An air-fed mask, or for short periods of work, a combination of charcoal filter and particulate filter respirator.

Eye protection : Goggles or full face mask.

Hand protection : Impermeable gloves (neoprene or synthetic rubber) .
Material can harden gloves and increase the risk of their splitting.
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 reuse.

9. Physical and chemical properties

Appearance	:	clear liquid.	Viscosity	:	~20 mPa.s at 20 °C
Odour	:	faint	Relative Density	:	~1.18 at 20 °C
Boiling Point	:	Do not distil, decomposes	Water solubility	:	Partly miscible
Flashpoint	:	Above the SADT point	Ignition temperature	:	Test method not applicable
Vapour pressure	:	Not determined	Active oxygen content	:	8.8 – 9.0%
SADT	:	60 °C.			

10. Stability and reactivity

SADT (Self Accelerating Decomposition Temperature) is the lowest temperature at which self accelerating decomposition may occur with a substance in the packaging as used in transport. A dangerous self-accelerating decomposition reaction and, under certain circumstances, explosion or fire can be caused by thermal decomposition at and above 60 °C. Contact with incompatible substances can cause decomposition at or below the SADT.

Conditions to avoid : Avoid temperatures above 25 °C. Avoid shock and friction.
Confinement must be avoided.

Materials to avoid : Avoid contact with rust, iron and copper. Contact with incompatible materials such as acids, alkalis, heavy metals and reducing agents will result in hazardous decomposition.
Do not mix with peroxide accelerators.
Use only stainless steel 316, PVC, polyethylene or glass lined equipment.

Hazardous decomposition products : Decomposes under heating.
Carbon dioxide (CO_2), acetic acid, formic acid, propanoic acid, methyl ethyl ketone.

11. Toxicological information

Acute oral toxicity	:	Methyl ethyl ketone peroxide	LD_{50} Oral (rat) : 1017 mg/kg
		Dimethyl phthalate	LD_{50} Oral (rat) : >2400 mg/kg
		Methyl ethyl ketone	LD_{50} Oral (rat) : 2737 mg/kg
Inhalation	:	Methyl ethyl ketone peroxide	LC_{50} Inhalation (rat) : 17 mg/l (4 hours exposure)
		Dimethyl phthalate	LC_{50} Inhalation : 9300 mg/m^3 (6.5 hours exposure)
		Methyl ethyl ketone	LC_{50} Inhalation (rat) : 23.5 mg/m^3

Irritation : Material is corrosive, will cause severe irritation to skin and eyes.
Burns of the eye can cause blindness.

Sensitisation : No sensitising effects known.

Carcinogenicity : There is no evidence known to us that this material or its constituents are carcinogenic.

Mutagenicity : There is no evidence known to us that this material or its constituents are mutagenic.
Ames test on methyl ethyl ketone peroxide : Not mutagenic.

Reproductive toxicity : There is no evidence known to us that this material or its constituents are toxic for reproduction.

12. Ecological information

Ecotoxicity :

Methyl ethyl ketone peroxide, 40% in Dimethyl phthalate
LC_{50} (poecilia reticulata) = 44.2 mg/l (96 hrs)
EC_{50} (bacteria) = 48.0 mg/l (activated sludge test)

Dimethyl phthalate LC_{50} (lepomis macrochirus) = 420 ppm (96 hrs)
IC_{50} (selenastrum capricornutum) = 39.8 mg/l (96 hrs)

Methyl ethyl ketone LC_{50} (lepomis macrochirus) = 3.22 g/l (96 hrs)

Persistence and degradability : All 3 components are readily biodegradable.

Additional ecological information : Dimethyl phthalate: Bio Concentration Factor (BCF) = 5.4 (24 hrs, fish)

13. Disposal considerations

Unused Product/waste from cleaning etc. : Dispose of in accordance with local and national regulations.
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, when in compliance with the Environmental Protection (Duty of Care) Regulations 1991.
Remove/invalidate the warning label.

14. Transport information

Proper shipping name: Organic peroxide type d, liquid
UN No: 3105
Note: Refrigerated containers for transport are required where the ambient temperature may exceed 45 °C.

ADR/RID

Class	:	5.2	**Item No**	:	P1
HI No	:	539	**Packing Group**	:	II
Contains	:	**Methyl ethyl ketone peroxide** (<40%)			

IMO

Class	:	5.2	**Marine Pollutant**	:	No
Packing Group	:	II			
Contains	:	**Methyl ethyl ketone peroxide** (<40%)			

IATA

Class : 5.2 **Packing Group** : II
Contains : **Methyl ethyl ketone peroxide** (<40%)

15. Regulatory information

Classification according to EEC directive:
Symbols:

Oxidising

Corrosive

R-phrases

R7 : May cause fire.
R22 : Harmful in contact with skin and if swallowed.
R34 : Causes burns.

S-phrases :

S3/7 : Keep container tightly closed in a cool place.
S14 : Keep away from reducing agents (e.g. amines), acids, alkalis and heavy metal compounds (e.g. accelerators, driers, metal soaps).
S36/37/39 : Wear suitable protective clothing, gloves and eye/face protection.
S45 : In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)
S50d : Do not mix with peroxide-accelerators or reducing agents.

Special provisions statement : None.

Hazardous component(s) which must be listed on the label : Methyl ethyl ketone peroxide.

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.

Codes of Practice Waste Management. The Duty of Care.
Approved classification and labelling guide (Fifth edition). L131.
The compilation of safety data sheets (Third edition).

Guidance Notes 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	C	:	Corrosive	F	: Highly Flammable
O	:	Oxidising	E	:	Explosive		

R2	:	Risk of explosion by shock, friction, fire or other source of ignition.
R7	:	May cause fire.
R11	:	Highly Flammable.
R22	:	Harmful by inhalation.
R34	:	Causes burns.
R36	:	Irritating to eyes.
R66	:	Repeated exposure may cause skin dryness or cracking.
R67	:	Vapours may cause drowsiness and dizziness.

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.