

# METZ SAUEREISEN 54SG

## STRUCTURAL GRADE ACID PROOF CONCRETE



### DESCRIPTION:

Metz Sauereisen 54SG is a potassium silicate based structural grade acid proof concrete for chemical resistant construction. Metz Sauereisen 54SG is fast setting and high strength, and can eliminate the requirement for Portland Cement concrete in new construction and maintenance applications.

Metz Sauereisen 54SG provides outstanding performance in the most severe acidic environments, i.e. in any concentration of sulphuric, nitric or phosphoric acids etc. Suitable for use in contact with molten sulphur.

### FEATURES AND BENEFITS:

- **Excellent Acid Resistance**  
Resistance to all acids in all concentrations (over a pH range of 0 - 7.0), except hydrofluoric acid and fluoride salts. Resistance for all concentrations of nitric, hydrochloric and sulphuric acids. Also resistant to most solvents and oils. Refer Metz Chemical Resistance Chart.
- **100% Potassium Silicate bonded**
- **High Service Temperature** - withstands temperatures to 750°C
- **Fast Chemical Set** - less down time required
- **May be applied over damp, acid-attacked concrete**
- **Needs no further protection** - once it is laid and cured it is ready for service

Note: Finished product will have a textured surface with some surface variations. Surface cracking is also possible.

### RECOMMENDED:

For chemical resistant construction of:

- Floors
- Bunds
- Plinths
- Sumps
- Pits
- Trenches
- Walls
- Ramps
- Lid covers
- Drains

and other structural support columns and bases in:

- Acid plants
- Oil refineries
- Fertiliser plants
- Chemical plants

### NOT RECOMMENDED:

- For alkalis in any form - generally any solution with pH above 7.0 depending on concentration and degree of exposure
- For hydrofluoric acid or fluoride salts
- For immersion conditions without appropriate Metz membrane
- For structural applications without appropriate corrosion resistant reinforcement

### PHYSICAL PROPERTIES:

(Typical Values)

Density	2.25 - 2.35 g/cm <sup>3</sup>
Maximum Service Temperature:	750°C
Shrinkage	0.2%
Compressive Strength	24 hours - 14 MPa and 7 days - 28 MPa
Modulus of elasticity	1.19 x 10 <sup>4</sup> MPa
Water Absorption	3%
Tensile Strength	4.5 MPa
Coefficient of Thermal Expansion (20°C-200°C)	10 x 10 <sup>-6</sup> per °C

### COVERAGE:

Theoretical coverage (allow for wastage). Quantities do not include losses during application or normal density variations.

Thickness	Quantity required per sq. metre
50mm	115kgs
75mm	173kgs
100mm	230kgs

or 2300 kgs per cubic metre



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### INSTRUCTIONS FOR USE

#### 1. Temperature of Working Area

Maintain a temperature of 10-32°C on air and substrate during application. Maintain 54SG liquid and powder at 15-25°C. At temperatures below 10°C, Metz Sauereisen 54SG will not cure properly. At temperatures above 32°C, the material will set very quickly and finishing may be difficult.

#### 2. Reinforcement and Anchors

When casting Metz Sauereisen 54SG appropriate reinforcement similar to that used with Portland cement concrete can be incorporated. In severely aggressive environments, corrosion resistant reinforcement should be used. Mechanical anchors are recommended for most installations, consult Metz for details.

#### 3. Surface Preparation

Where operating parameters and substrate conditions permit, Metz Sauereisen 54SG should be applied in conjunction with an appropriate chemical resistant membrane. Consult Metz for recommendations.

Foundation should be constructed with appropriate materials to support load. Metz Sauereisen 54SG should not be applied over standing water or loose soil.

**New Concrete:** Remove oil, grease, water and other contaminants by chemical cleaning. Abrasive blast, high-pressure water blast, or scabble concrete to remove laitance and provide a mechanical key, with a profile of 3-4mm. Concrete should be at least 28 days old.

**Old Concrete:** Concrete must be firm, dry and sound otherwise proceed as for new concrete.

**Brick:** Remove oil, grease, water and other contaminants from surface. Remove all loose material and provide a clean, firm surface.

If chemical cleaning is utilised to remove contaminants, substrate must be neutralised. If abrasive or high pressure water blasting is used as the method of surface preparation, all sand, debris and standing water must be removed by thorough vacuuming of the area.

#### 4. Expansion/Control Joints

**Toppings:** Joints in toppings are to be provided at 4.5 metre centres, around all fixed objects at perimeters and over all points of movement in the base slab. The use of Metz Acid Resistant Waterstop beneath all such joints is recommended. The joints should then be filled with the appropriate expansion joint filler. Consult Metz for recommendations.

#### 5. Mixing

##### (i) Mixing Equipment:

A slow speed mortar mixer or continuous mixer should be used. The mixing equipment must be clean and free of Portland cement or other contaminants. Alkaline residue will affect material setting. Remix liquid prior to use.

##### Mixing Proportions:

The recommended mixing proportions are:

By weight: Liquid - 1.0 parts Powder- 6.5 parts

By volume: 3.08 kgs (2.2 litres) Liquid

20 kgs bag Powder

The completed mix should have a flowable consistency.

#### Mixing Procedure:

The powder proportion can be adjusted slightly ( $\pm 5\%$ ) to suit conditions.

Mix slowly and thoroughly until mixture is a uniform consistency. Avoid air entrapment. Do not add any other additive.

Remove the entire batch from the mixer when mixing is complete to prevent build-up in the equipment. While pouring one batch, another should be mixed in order to eliminate delays and permit continuous placement of each section.

##### (ii) Pot Life (Material Temperatures)

20°C 35 minutes

30°C 20 minutes

40°C pot life will be too short for material to be successfully used

##### (iii) Clean Up

All equipment should be cleaned by scrubbing with a stiff brush and water, or by using high pressure water at the end of each working period or when build-up becomes pronounced.

#### 6. Installation

When casting Metz Sauereisen 54SG, form work should be firmly braced and given a light coating of release agent. Forms may be removed after set has occurred and Metz Sauereisen 54SG has sufficient strength to support itself.

To ensure proper compaction, it may be advisable to apply vibration to the external formwork. Pencil vibrators are not effective.

Metz Sauereisen 54SG is quickly screeded and then tamped into place. Do not overwork the surface by trowelling - it is not possible to achieve a fine floated surface with this industrial product. Overworking the surface will lead to surface cracking. For floor toppings a vibrating screed is effective.

Cold joints should be avoided. Where this is not possible they require a liberal priming with Metz Sauereisen 54SG liquid prior to placing the adjoining material.

#### 7. Setting/Curing

Initial Set: 5 hours at 20°C 3 hours at 30°C

Full Cure: 48 hours at 20°C 24 hours at 30°C

For temperatures below 20°C a longer curing time should be allowed. Do not impose loads until final set has been achieved.

Note: Do not allow substrate or material temperature to fall below 10°C until cure achieved. Do not allow water or chemicals on materials surface for a minimum of 48 hours. It is recommended to acid wash the surface after full cure. Use 10% Hydrochloric Acid solution and dampen the entire surface. Do not wash off, let dry. Do not use curing compounds.

#### 8. Storage

Store in original sealed containers in a cool, dry place. Under these conditions, shelf life is minimum of 6 months.

#### 9. Safety Precautions

##### Liquid:

Avoid any contact with eyes. Wear safety glasses when mixing.

If contact occurs, wash with copious amounts of water.

Seek medical attention. Avoid contact with skin. Wear protective gloves.

##### Powder:

Avoid breathing dust. Ensure adequate ventilation.

For full safety precautions, refer to the Safety Data Sheets for each component.

**Always ensure you have the latest data sheet version, refer [www.metz.net.au](http://www.metz.net.au)**

1. The customer must comply strictly with the instructions contained in this product data sheet. Metz is not responsible for any advice or variations to this data sheet which are not confirmed in writing.
2. If the customer has a claim against Metz in respect of any product supplied to the customer by Metz whether due to a fault in the product or the negligence or breach of contract by Metz or for any other reason:
  - a) Metz shall not be liable for any loss or damage including consequential loss or damage or loss of profits arising thereby;
  - b) Metz may at its option replace the defective product free of charge to the customer or refund all payments made to it by the buyer in respect of the defective product; and the maximum liability of Metz shall be the cost of replacing the defective product.