

TECHNICAL DATA SHEET

METOSET

DESCRIPTION

Metoset is a rapid curing one shot+two-part chemical anchoring cartridge system based on a polyester resin. Applied in one single action to produce a cost-effective, tough, chemical-resistant fixing, Metoset is ideal for close-to-edge applications (unlike expansion anchors) as no stress is placed on the surrounding substrate. Versatile in use, Metoset is suitable for fixing wall ties, starter bars, studs, bolts or large screws in a wide range of substrates including brickwork, concrete, masonry, stone and PFA blocks. Hollow base materials can be securely fastened into by using Metoset in conjunction with a sleeve or sieve.

PREPARATION

1. Drill hole to the correct diameter and depth (see chart for guide), ideally using a rotary percussion machine. For optimum results, the hole must be coarse sided. If the holes are produced by diamond drilling, the surfaces should be thoroughly roughened.
2. Remove all dust and debris from the hole using a hand air pump or a stiff rotary brush.
3. All bars should be clean and free from oil or grease and all flaking rust should be removed. Threaded rod or studs should be chisel-ended to prevent them being unscrewed from the cured resin.

APPLICATION

1. Attach the mixing nozzle to the cartridge (screw down hand tight).
2. Place cartridge into Metoset dispensing gun.
3. Open the cartridge by pressing the green end of the colour coded valve. Gradually pressurise the cartridge by activating the hand trigger a few times until material passes through the mixing nozzle. Stop pressurising and allow the material to flow until an even colour is obtained (approximately 5-6 inches of extruded material should be adequate).
4. Press the red end to close the valve. Insert the nozzle into the base of the hole. Open valve again by pressing the green end and activate the trigger, withdraw the nozzle slowly as the hole fills.
5. Once the required fill is achieved, shut off the valve and wipe off excess material. Insert the fixing with a rotating action to the desired depth. Once all applications have been carried out, release the pressure by pressing the slide release arm on the back of the trigger stop and pulling back the slide rail. Remove the used mixing nozzle and wipe away excess material on the end of the cartridge.

N.B. Once material has started to extrude through the nozzle, over-pressurising the system will not increase flow rate, and can cause leakage from the rear of the cartridge.

Cure time quoted is the recommended minimum time before loading.

ULTIMATE PHYSICAL PROPERTIES

TENSILE STRENGTH	(ASTM 638)	-	> 10 N/mm ²
COMPRESSIVE STRENGTH	(ASTM 695)	-	48 N/mm ²
FLEXURAL STRENGTH	(ASTM 790)	-	20 N/mm ²
ELASTIC MODULUS		-	4206 N/mm ²
MIXED DENSITY		-	1.65 g/cm ³
FLEXURAL MODULUS		-	3238 N/mm ²

ANCHOR SIZE (mm)	HOLE DIAMETER (mm)	HOLE DEPTH (mm)	TENSION (kN) (Ultimate pull out)	FIXINGS PER UNIT (Holes filled 2/3 full)		
				150ml	235ml	380ml
8	10	80	23.7	35	56	90
10	12	90	25.7	22	34	56
12	14	110	43.3	13	20	34
16	18	125	53.7	7	11	18
20	22	150	58.3	4	6	10

Tension figures quoted are tested in accordance with BS 5808 part 1 in 63 N/mm² concrete blocks (12 x 12 x 12 inches). In all cases for 16mm and 20mm anchors, failure of the concrete block was observed before the anchor was dislodged.

The ultimate pull out strength is varied by:

1. The strength of both the substrate and bar/stud
2. The length of the resin bond to bar
3. Hole preparation
4. Anchor separation

Safety factors of between 2:1 and 4:1 should be considered, depending on the strength and nature of the substrate. Due to the inconsistent nature of hollow blocks and bricks, tension figures may vary. Site testing should be carried out where necessary to establish particular suitability. In order to achieve maximum performance, the distance between the centres of the anchors should be a minimum of 2.5 x the embedment depth, and 1.25 x the embedment depth for the minimum distance from edges.

STORAGE

Store in a dry area between 5°C and 25°C. Do not expose to direct sunlight. Storage at higher temperatures will reduce the shelf life.

HEALTH AND SAFETY DATA

Metoset contains styrene and is flammable. Do not smoke and do not allow naked flames to come into contact with this material. Avoid breathing vapour and wear suitable protective clothing such as gloves and overalls. On contact with skin wash off immediately with plenty of soap and water. For further information, refer to the Material Safety Data Sheet.

IMPORTANT

The information and data given is based on our own experience, research and testing and is believed to be reliable and accurate. However, as we cannot know the varied uses to which products may be applied, or the methods of application used, no warranty as to the fitness or suitability of products is given or implied. It is the user's responsibility to determine suitability of use. For further information, please contact our Technical Department.

TECHNICAL DATA

MIXING RATIO . 10:1 by volume as supplied in 380ml cartridge

TEMPERATURE		GEL TIME (MINUTES)	CURE TIME (MINUTES)
(°C)	(°F)		
5	41	12	240
10	50	9	180
15	59	6	150
20	68	5	120
25	77	3	60

MATERIAL SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE & OF THE COMPANY UNDERTAKING.

Product name: Metoset base
Company: Nickerson Chemicals , Dewsbury, WF12 9BQ
Tel: 01924 453886/461341

2. COMPOSITION/INFORMATION ON INGREDIENTS:

Hazardous components	Cas No	Percentage
Styrene	100-42-5	<20%

3. HAZARDS IDENTIFICATION

Harmful, flammable, irritant vapour, marine pollutant.

Signs and symptoms of exposure (acute effects). Irritant of skin, eyes and respiratory tract.

Signs and symptoms of exposure (possible long term effects) Irritant. Can cause skin disorders with repeated prolonged exposure. Inhalation of vapour can cause nausea and headaches

4. FIRST AID MEASURES

Summon immediate medical assistance after contact with skin, eyes, inhalation or ingestion.

Eye: Irrigate with clean water for at least 15 minutes. Seek medical attention.

Skin: Remove from skin with plenty of soap and water. Remove contaminated clothing. If irritation persists, seek medical attention

Ingestion: Drink plenty of water. Seek medical attention. Do not induce vomiting.

Inhalation: Remove patient to fresh air and allow to rest. If patient is slow to recover or unconscious, obtain medical assistance immediately

5. FIRE FIGHTING MEASURES

Extinguishing media: Dry powder, CO2 and foam

Exposure hazards: Flammable. Sealed containers heated can pressurise leading to explosion. Emits acrid black smoke and irritating fumes when heated to decomposition

Fire fighting equipment: Wear self contained breathing apparatus

6. ACCIDENTAL RELEASE MEASURES

Do not discharge into sewers. Scrape up and place into a suitable container for disposal. Wash area with water.

7. HANDLING AND STORAGE

Keep away from heat and sources of ignition. Store below 25°C in a dry well ventilated space. Store separately from peroxides.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational exposure limits:	Long term	100ppm	(UK)
	Short term	10 minutes 250ppm	(UK)

Respiratory: If forced air extraction is not available in enclosed areas an organic vapour mask will be required if the occupational exposure limit is exceeded

Ingestion: Unlikely during normal use

Skin protection: Wear gloves at all times

Eye protection: Not normally required during normal use. If splashing can occur, goggles should be worn

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Thick coloured paste

Odour: Styrene

Specific gravity: 1.63g/cm3 at 20°C

Boiling point range: -

Melting point range: -

Flashpoint (°C): 31°C

Flammability: Flammable

Autoflammability: 490°C

Explosive properties: Lower limit 1.1% Upper limit 6.1%

Vapour pressure: 6.52 mb at 20°C (styrene)

Solubility: Insoluble in water

10. STABILITY AND REACTIVITY

Stability: Can polymerise exothermically if heated, exposed to air, sunlight or by addition or free radical initiators. Stable under normal conditions

Materials to avoid: Reacts vigorously with strong oxidising agents and peroxides

Hazardous decomposition: Emits acrid smoke with irritating fumes when heated to decomposition

Hazardous polymerisation: Polymerisation in a closed container can give rise to pressure, which may rupture the vessel

11. TOXICOLOGICAL INFORMATION

Oral: Material is classed as harmful. An LD50 (rat) is 5g/kg for styrene LC50 (rat) ranges between 2770-6000 ppm

Inhalation: Lung irritant can induce drowsiness and eventually unconsciousness

Eye: Severe irritant

Skin: Modest irritant

12. ECOLOGICAL INFORMATION

Marine pollutant. Do not discharge into drains or the environment

13. DISPOSAL RECOMMENDATIONS

In an uncured state, place in a suitable container and dispose as chemical waste in accordance with local regulations. Small quantities may be reacted with the corresponding amount of activator. Allow to cure and dispose as solid waste.

14. TRANSPORT INFORMATION

Supply label: Harmful, Marine Pollutant, Flammable

IMDG Code: 3379 UN No/SI No: 1866 EAC: 3 (Y)

Hazard Class: 3 ADR HIN: 30 Packing group: III

15. REGULATORY INFORMATION

Labelling: Harmful, Marine Pollutant, Flammable

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

Safety phrases: S2 Keep out of reach of children
S23 Do not breathe vapour
S28 After contact with skin, wash immediately with plenty of soap and water

16. OTHER INFORMATION

The information contained within this document is furnished without warranty of any kind. Users should consider this data only as supplement of other information gathered by them and make independent determinations of suitability and completeness of information from all sources to ensure proper use and disposal of these materials and the safety of employees customers