protection&coating

- Masterseal 110P
- Masterseal 180
- Masterseal 313 (Atrocoat)
- Masterseal 380 P (Atroseal M-12)
- Masterseal 411
- Masterseal 420
- Masterseal SP120
- Rheocrete CNI

- MASTERSEAL® 110P

Solvented coal tar epoxy resin coating

Description

MASTERSEAL 110P is based on coal tar modified with epoxy resin and solvent to facilitate spray application. The excellent adhesion of MASTERSEAL 110P to concrete and steel afford the product a variety of different applications.

The chemical resistant properties of MASTERSEAL 110P make it particularly suitable in aggressive environments such as are found in sewage works.

Primary uses

For the coating of steel, concrete and asbestos cement, where a heavy duty protective, waterproof, resilient and abrasion resistant coating is required.

Advantages

- Excellent general chemical resistance.
- Easily applied by brush, roller or spray.
- Suitable for multi-layer applications.
- Abrasion resistant.
- Durable, resilient.
- Supplied in pre-weighed units.

Typical applications

- Manhole covers and linings.
- Concrete bases and foundations.
- Coating engineering bricks.
- Lining drainage and sewage pipes.
- Non-slip walkways, traffic decking.
- Protection of steelwork in aggressive environments.

Packaging

MASTERSEAL 110P is supplied in 10 litre units.

Typical properties*

* Properties listed are only for guidance and are not a guarantee of performance.

Pot life at 35°C:	2 hours
Mixed density:	1.35g/cm³ at 25°C
Coverage:	4-7m²/ltr depending on film thickness
Dry film thickness on non porous concrete:	130 microns per coat at 5.4m²/litre, or 0.25kg/m² (2 coats recommended)
Dry film thickness on non porous concrete:	130 microns per coat at 5.4m²/litre, or 0.25kg/m² (2 coats recommended)
Finished film appearance:	Smooth, glossy, dense black surface
Chemical resistance:	Excellent to most aqueous systems, sewage, urine, fresh water, sea water, diluted and concentrated alkalis, diluted acids, mineral, vegetable and animal oils and fats, ammonia, formaldehyde.

Guide to application

Surface preparation:

As with all epoxy resin systems, surface preparation is of prime importance. It is essential that thorough surface preparation is undertaken to ensure that the system develops maximum performance.

For concrete surfaces, remove all grease, oil, dust, laitance, etc., and ensure substrate to receive the coating is sound. Where necessary cut back and make good.

Mechanical methods of preparation may be necessary to remove laitance. Concrete cured with curing membranes should have the membrane removed before application.

Blow holes, pin holes and other surface defects should be filled with CONCRESIVE 2200.

Metal surfaces should be clean, dry, and free from grease, oil and rust.

Mixing:

MASTERSEAL 110P is supplied in pre-weighed units consisting of individually packaged base and reactor.

The entire contents of the base and reactor tins must be thoroughly mixed together before use. This is best achieved by mixing with a slow speed drill fitted with a mixing paddle. Ensure that both materials are mixed until a uniform colour is achieved. No additions or omissions are required, and on no account should attempts be made to split packs.

Application:

Airless spray, brush or roller applications are recommended. A dry film thickness of 130 microns can be achieved with one coat at the recommended coverage rate. Apply the MASTERSEAL 110P ensuring no pin holes, etc., are visible and the background is completely covered. Allow to cure overnight before applying a second coat to achieve desired film thickness. Where possible the second coat should be applied at right angles to the first. For most applications, reliable protection can be achieved with a dry film thickness of 250 microns. The porosity and texture of the substrate will affect the coverage rate.

Equipment care

Spray guns, rollers, brushes etc., should be cleaned immediately after use with CLEANING SOLVENT NO. 2.

Storage

Up to 12 months when stored under cover, out of direct sunlight and protected from extremes of temperature.

Health and safety

As with all chemical products, care should be taken during use and storage to avoid contact with eyes mouth, skin and foodstuffs. Treat splashes to eyes and skin immediately. If accidentally ingested, seek immediate medical attention. Keep away from children and animals. Reseal containers after use.

Note

Field service, where provided, does not constitute supervisory responsibility. For additional information contact your local Degussa representative.

Degussa reserves the right to have the true cause of any difficulty determined by accepted test methods.

Quality

All products produced by Degussa certified manufacturing facilities, are produced to conform to systems designed to meet internationally recognised quality standards.

09/2005 Degussa-IR

MASTERSEAL® 180

A non-toxic solvent free high build, protective epoxy resin coating

Description

MASTERSEAL 180 is a protective high build epoxy resin coating specifically developed to protect concrete and steel. Supplied as a two-pack system comprising pigmented base and a hardener, it requires only on site mixing to produce an easily applied decorative and chemically resistant finish. MASTERSEAL 180 can be safely used in areas where contact with foodstuffs is envisaged or for coating potable water storage tanks. It is solvent free and can be used with safety in small rooms or tanks without the need to provide special ventilation. MASTERSEAL 180 coatings will not support the growth of bacteria.

Primary uses

For the internal protection of concrete or metal tanks containing drinking water, certain chemicals, oils and fuel. Contact your Degussa representative for further advice.
As an impervious, resilient and chemically resistant floor or wall coating in food manufacturing plants, breweries, canning and bottling factories. As a gas and vapour barrier. As a protective and decorative coating in laboratories, abattoirs, etc. Other usage areas include oil refineries, paper mills, power stations, garages, hospitals, sugar refineries, hangars and most liquid containment areas.

Appearance and finish

High gloss, heavy bodied, ultra dense surface. Hygienic and easily cleaned. Standard colours are light grey and dusty grey.

Advantages

- Durable
- Non-toxic
- Waterproof and protective
- High chemical resistance
- Solvent free
- High build coating
- Easily applied by brush or roller

Packaging

MASTERSEAL 180 is supplied in 5kg units.

Typical properties

Pot life at 30°C:	30 minutes
Mixed density:	1.5gm/cm³ at 25°C
Tack free time:	Approx. 4 hours at 35°C
Initial cure:	12 hours at 30°C
Final cure:	4 days at 30°C
Coverage:	0.29 - 0.40kg / m² / coat
Finished film thickness:	180-240 microns per coat
Bond to concrete:	In excess of the cohesive strength of concrete

Approvals

Water Research Council Approval for use with Potable Water.

Application procedure

Surface preparation:
The substrate should be a smooth or semi-smooth sound surface such as concrete or metal. It is most important to ensure that thorough surface preparation is undertaken prior to application of the MASTERSEAL 180 coating.

Concrete:
Ensure concrete is free from excessive laitance, grease, oil, curing compound, etc. Ensure concrete is sound, cutting back where necessary and making good using suitable Degussa EMACO or CONCRESIVE repair systems. Ensure all blow holes and surface imperfections are made good prior to application of the MASTERSEAL 180 coating. Ensure concrete is at least 28 days old. Contamination by oil, grease, fats etc. must be removed before other forms of preparation begin. Remove laitance to expose blow holes, by light grit blasting.

Steel:
All previous surface treatments should be removed taking the surface back to base metal. The base metal should be abraded and preferably shot blasted with grit, steel shot or proprietary abrasive. Where shot blasting is impractical pre-treatment may be carried out with pneumatic de-scaling guns, tap hammers, rotary wire brushes or by flame scaling. Cleaning with solvent or a strong detergent is advisable to ensure surface is free from grease etc. Do not allow surface to re-oxidise before application of MASTERSEAL 180.

Mixing:
MASTERSEAL 180 is supplied in two pre-weighed components, base and reactor. No additions or omissions are required. Add reactor contents to the base component and mix thoroughly for using a slow speed drill fitted with a suitable mixing paddle until a uniform streak free colour is achieved.

Application:
MASTERSEAL 180 coating can be applied using good quality rollers or short haired brushes or by airless spray. It is recommended that MASTERSEAL 180 coating be applied in two coats of contrasting colours to ensure complete coverage.

Prior to the application of each coat the surface should be examined for signs of pin-holing, etc. Where pin-holing is evident these should be filled using CONCRESIVE 2200 thixotropic epoxy resin filler.
If the application is delayed more than 16 hours at 40°C or 36 hours at 20°C after the previous coat (the higher the ambient temperature, the shorter the maximum period), then the previous coat must be thoroughly abraded to give an adequate mechanical key and solvent wiped.

Airless spray:
For application by airless spray, use a 45:1 or higher ratio pump, minimum 9mm dia hoses and HD tip 19-23 thou.

Overcoating:
Where areas need to be overcoated due to damage etc. it is important that the areas to be treated are well abraded using a stiff rotary wire brush or coarse sand paper to give an adequate

Composition:	Two component, non-toxic, pigmented solventless epoxy resin based compound.
Coverage:	0.29 to 0.40kg/m²/coat, two coats are recommended.
Dry film thickness:	180 to 240 microns/coat.

key. Completely strip off any unsound coating and proceed with overcoating as for new work.

Chemical resistance

MASTERSEAL 180 is resistant to intermittent spillages of the following typically encountered chemicals:

- Formaldehyde, 40% solution
- Sulphuric Acid, 50% solution
- Hydrochloric Acid, 50% solution
- Hydrochloric Acid 5% solution
- Lactic Acid, 50% solution
- Nitric Acid, 10% solution
- Sodium Hydroxide, 50% solution
- Diesel oil
- Wine
- Sea and brackish water
- Aviation hydraulic fuels (Skydrol)
- Vegetable oils

Note: Higher concentration of mineral acids may cause matting of the surface and colour changes

Equipment care

All equipment must be cleaned immediately after use with CLEANING SOLVENT NO. 2. Similar cleaning procedures should be adopted for break periods exceeding 15 minutes duration.

Specification clause

MASTERSEAL 180:

Where indicated, apply MASTERSEAL 180 protective epoxy coating as manufactured by Degussa, or similar approved to the following specification:

Storage

Store under cover out of direct sunlight and protect from extremes of temperature. In tropical climates the product must be stored in an air conditioned environment. Failure to comply with the recommended storage conditions may result in premature deterioration of the product or packaging. For specific storage advice consult Degussa's Technical Services Department.

Safety precautions

As with all chemical products, care should be taken during use and storage to avoid contact with eyes mouth, skin and foodstuffs. Treat splashes to eyes and skin immediately. If accidentally ingested, seek immediate medical attention. Keep away from children and animals. Reseal containers after use. For further information, refer to material safety data sheet.

Note

Field service, where provided, does not constitute supervisory responsibility. For additional information contact your local Degussa representative.

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Quality

All products produced by Degussa certified manufacturing facilities, are produced to conform to systems designed to meet internationally recognised quality standards.

06/2005 Degussa-IR

MASTERSEAL® 313

(Formerly Atrocoat)

Water based concrete and structures coating based on modified polymer resins

Description

MASTERSEAL 313 is special pigmented protective coating, which can be used on different surfaces such as concrete, plaster, stone or any other mineral constructional materials with two main purposes:

- Protective coating against chloride attacks, carbonation and freezing damages, with high durability effect.

Beautification of exposed surfaces.

Applications

MASTERSEAL 313 is ready to use paste which requires only on-site dilution of 10-15% of water. It is based on acrylate polymers with excellent adhesion to constructional materials. In order to achieve better effect proceed as follows:

- Clean and wash the surfaces and fill the cracks if existed.
- Spray MASTERSEAL 313 primer on areas to be painted.
- Apply MASTERSEAL 313 by means of paint-brush, spray,or roller in duplicate layers with 1 to 2 hours intervals.
- Topcoat can be used as the last coating to increase UV resistance (MASTERSEAL 313 primer can be used as topcoat).

Packaging

MASTERSEAL 313 is available in 12.5kg pails in white shade, other shades (colours) can be produced in accordance with customer requirements .

Coverage

The coverage of MASTERSEAL 313 depends on surface smoothness and varies from 250-300gms of Masterseal coating and 100-150gms Masterseal primer per square meter.

Shelf life

12 months in its original pails, out of direct sunlight and protected from freezing and extremes of temperature (storage temperature 5-30°C).

Note

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Quality

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04/2005 Degussa-IR

MASTERSEAL® 380 P

(Replaces Atroseal M-12)

Silane siloxane primer and penetrative water repellent protective treatment for concrete and masonry

Description

An optimum concentration of reactive hydrophobic silane-siloxane.
MASTERSEAL 380 P provides a protective impregnating treatment.
MASTERSEAL 380 P works by penetrating into the pores of concrete and reacting there with the moisture / water vapour present to form a hydrophobic polysiloxane lining to the capillaries.

Primary uses

- Colourless surface applied protection for in situ and precast concrete to prevent ingress of water and water borne salts.
- Reducing efflorescence in masonry structures.

Advantages

- Prevent ingress of water borne chlorides and sulphates.
- Water vapour permeability unaffected; allows concrete to breathe.
- Excellent penetrative / reactive action.
- Integral protection, cannot peel off or erode.
- Protects surfaces from discoloration and pollution.
- Excellent water repellent characteristics.
- Easy to use, cost effective.
- Simple spray application.
- Single component, no mixing.
- No change in surface texture or appearance.
- Compatible with water surface coatings.

Packaging

MASTERSEAL 380 P is available in 20 and 210 litre drums.

Typical properties*

* Properties listed are only for guidance and are not a guarantee of performance.

Appearance:	White milky liquid. Dries to tack-free film.
Specific gravity:	1.00 at 20°C
Dry film thickness:	n/a - penetrating impregnant
Overcoating time:	"Wet-on-wet" application. Second coat can be applied immediately.
Minimum application temperature:	Protect from freezing

Application procedure

Surface preparation:

All surfaces to be treated should be fully cured, dry and free from laitance, traces of mould oils or curing membranes. All oils, greases, previous coatings and laitance should be removed, preferably by dry grit or sand blasting. Slightly damp substrates can be treated. Surfaces should be dry with no wet spots.

Application:

MASTERSEAL 380 P can be used direct from the container, no mixing is required, but stir before use. Do not dilute with water or solvents. Apply by low pressure spray or brush ensuring complete surface coverage. On vertical surfaces MASTERSEAL 380 P should be flooded on starting at the bottom, working steadily upwards. When used as a protective impregnation a minimum of two applications is recommended "wet-on-wet" with immediate application of second. Application should be at the given coverage rate of 3m²/litre.

Since MASTERSEAL 380 P reacts with atmospheric humidity, prolonged contact with air should be avoided. Keep containers sealed when not in use.

Coverage

Coverage will depend upon the porosity of the substrate. Optimum coverage is 3-6m²/litre/coat.

Watchpoints

- Surfaces must be dry.
- High winds will interfere with application.
- Protective barriers may be required.

Equipment care

Wash with water immediately after use. Protect from frost.

Storage

Store under cover, out of direct sunlight and protect from extremes of temperature. Shelf life is at least 12 months when stored as above in unopened containers.

Failure to comply with the recommended storage conditions may result in premature deterioration of the product or packaging. For specific storage advice consult Degussa's Technical Services Department.

Note

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Quality

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04/2006 Degussa-IR

MASTERSEAL® 411

High solids protective coating based on emulsified bitumen

Description

MASTERSEAL 411 is a non-fibrated, water based bitumen emulsion. It is dark brown in colour and dries to a black flexible protective coating. The finished film is tough and waterproof and forms a barrier to water and vapour transmission.

Typical applications

- General waterproofing and damp proofing of concrete, asbestos cement, roofing felt, slate tiles, wood, etc.
- Metal protection: provides protection for structural steelwork, pipes, etc.
- Insulation: provides a vapour barrier for cold storage rooms, etc.
- Protection to a variety of buried structures such as concrete foundations and retaining walls.

Advantages

- Chemical resistance.
- Versatile.
- Economical
- Easy to apply.
- Cold applied.

Packaging

MASTERSEAL 411 is available in 8 kg and 200 kg drums.

Composition

A blend of selected fillers and bitumens emulsified in water.

Application procedure

Surface preparation:

Ensure surface to be treated is sound and free of all oil, grease or conventional curing compounds. MASTERSEAL 411 can be applied directly to concrete surfaces cured utilising non-degradable curing compounds such as MASTERKURE 181.

If the surface is dusty it should be primed with a coat of MASTERSEAL 411 diluted with an equal quantity of clean water and allowed to dry, before applying further coats of MASTERSEAL 411. MASTERSEAL 411 can be applied to damp surfaces, although both coating and surface must be allowed to dry before the MASTERSEAL 411 will cure to form a waterproof film.

Typical properties*

* Properties listed are only for guidance and are not a guarantee of performance.

Flashpoint:	Non flammable
Specific gravity:	1.01 to1.03 @ 25°C
Application temperature:	5°C to 50°C
Service temperature:	-10°C to 85°C (depending on operating conditions)
Chemical resistance:	Excellent to water, dilute acids, alkalis, chloride and sulphate ions
Flexibility:	Provides a firm flexible coating

Standards

ACI 515 IR-79. Guide to use of waterproofing, damp proofing, protecting and decorative barrier systems for concrete. Chapter 2 Section 2.1.1, 2.1.2., 2.1.3.

Performance

Concrete coated with MASTERSEAL 411 will prevent the absorption of saline solutions. On uncoated surfaces, salts in groundwater will penetrate and can cause reinforcement corrosion and concrete deterioration

Application

Agitate before use. As settlement can occur, the drum should be rolled before decanting material.

Apply by brush, broom or squeegee. Apply one or two coats, depending on the degree of protection required. Apply subsequent coats at right angles to the first, allowing 12 to 24 hours between coats. Where being utilised to damp proof solid floors or where a screed is to be applied over MASTERSEAL 411, apply a second coat at right angles and lightly grit to form a key. Allow at least 24 hours before application of concrete screed, ensuring this is greater than 50mm in thickness.

Coverage

2-4m² per litre per coat depending on substrate porosity.

Equipment care

After use, if the MASTERSEAL 411 has not dried, it may be possible to clean tools using soapy water. If the MASTERSEAL 411 has dried remove as much as possible by physically scraping and then remove remainder with paraffin, white spirit or CLEANING SOLVENT NO. 2.

Storage

Store under cover, out of direct sunlight and protect from extremes of temperature. In tropical climates the product must be stored in an air-conditioned environment. As with all bituminous emulsions, some settlement will occur with prolonged storage. It is, therefore, necessary to invert the drums monthly to disperse the settlement.

Shelf life is up to 6 months in unopened containers, when stored as above.

Failure to comply with the recommended storage conditions may result in premature deterioration of the product or packaging. For specific storage advice consult Degussa's Technical Services Department.

Safety precautions

As with all chemical products, care should be taken during use and storage to avoid contact with eyes, mouth, skin and foodstuffs. Treat splashes to eyes and skin immediately. If accidentally ingested, seek medical attention. Reseal containers after use. Use in well ventilated areas and avoid inhalation. For further information refer to the material safety data sheet.

Note

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Quality

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04/2006 Degussa-IR

MASTERSEAL® 420

A bitumen / rubber latex emulsion. Surface applied, flexible, damp and vapour-proof liquid membrane.

Description

MASTERSEAL 420 is a brown rubber/bitumen liquid emulsion with excellent adhesion which dries to a tough black seamless, flexible waterproof and vapour-proof membrane.

Primary uses

- Tanking and waterproofing structures: to provide an impervious waterproof membrane on concrete and brick.
- Floors: to provide a sandwich membrane in new construction or a surface treatment.
- Walls: for interior and exterior walls.
- Roofs: for the maintenance of many types of roofs including built-up felt, asphalt, lead, zinc, aluminium, concrete, lightweight screeds, timber, slate, asbestos cement, corrugated iron, and as a vapour barrier.
- As an adhesive: for bonding wood blocks and wood mosaics, insulation board, expanded polystyrene and cork tiles and to provide a key for plastering.

Composition

MASTERSEAL 420 is a thixotropic cold applied bitumen emulsion with added rubber latex.

Packaging

MASTERSEAL 420 is supplied in 200 litre containers.

Typical properties*

* Properties listed are only for guidance and are not a guarantee of performance.

Colour:	Dark brown
Specific gravity:	1.01 at 25°C
Coverage:	1 - 4.5m² / litre
Flashpoint:	Non flammable
Service temperature:	-30°C to +100°C
Dry film thickness:	1.16mm at 2litre / m²
Application temperature:	+5°C to 55°C
Rubber content:	10% in the dried film

Standards

- The Building Regulations 1972.
- BS 8102 - Protection of structures against water from ground.
- DOE 23 - Damp proof courses.
- DOE 77 - Adhesives used in buildings.
- BRE Digest 54 - Damp proofing solid floors.

Application procedure

MASTERSEAL 420 may be applied by brush or squeegee. All surfaces to which MASTERSEAL 420 is applied must be sound, stable with an even finish and free from dirt, dust, loose debris, grease etc. It may be applied to damp but not

waterlogged surfaces. Hot, very dry or porous surfaces should be dampened with a priming coat before MASTERSEAL 420 is applied. Where subsequent coats are to be applied, the first coat must be dry.

Below ground protection:

MASTERSEAL 420 may be applied to green concrete immediately after shuttering has been removed. Blind the first coat with clean sharp sand to afford higher dry film thickness and aid monitoring layer applications.

Sandwich membrane:

Two coats to be applied at right angles to give a D.F.T. of 770 microns in accordance with BS 8102. Blind second coat with clean sharp sand to provide a mechanical key for top screed (minimum thickness 50mm). MASTERSEAL 420 membrane should marry up with D.P.C. (where applicable).

Walls with dampness:

Remove any coatings and plaster back to the blockwork. Apply three coats of MASTERSEAL 420 blinding the final layer with clean sharp sand whilst still tacky. Replaster using a render modified with RHEOMIX 141.

Coverage

		m² / litre		
Use	Number of coats	1st coat	2nd coat	3rd coat
Priming coat: (when required) Diluted with six parts water	1	7.50		
Waterproofing and protective coating of structures: Bridge abutments, retaining walls, culverts, concrete or brick foundations, concrete columns and beams.	2	2	2.25	
Floors: sandwich membrane surface treatment	2 2	1.50 2.00	1.50 2.00	
Walls: interior and exterior	3	2.25	2.25	2.25
Roofs (with MASTERFLEX scrim) felt, asphalt, lead, zinc, aluminium, concrete, timber, slate or corrugated roofs. Vapour barrier.	3 2	1 1	1.50 1.50	1.50
Adhesive: wood blocks, wood mosaics insulation board, expanded polystyrene, cork slabs. Plastering on difficult surfaces.	1 2	1.50 4.50	 4.50	

Equipment care

Before MASTERSEAL 420 has dried, clean tools using soapy water. If dried, remove by scraping and with paraffin or white spirit.

Specification clause

MASTERSEAL 420:

All areas indicated shall receive 2 or 3 coats as recommended of a high build rubber/ bitumen emulsion such as MASTERSEAL 420 as manufactured by Degussa, or similar approved.

Safety precautions

As with all chemical products, care should be taken during use and storage to avoid contact with eyes, mouth, skin and

foodstuffs. Treat splashes to eyes and skin immediately. If accidentally ingested, seek immediate medical attention. Reseal containers after use.

Storage

Store under cover out of direct sunlight and protect from extremes of temperature. In tropical climates the product must be stored in an air conditioned environment. As with all bitumen emulsions, some settlement will occur with prolonged storage. It is, therefore, necessary to invert drums every other week to disperse the settlement.

Shelf life is up to 6 months, in unopened containers, when stored as above.

Failure to comply with the recommended storage conditions may result in premature deterioration of the product or packaging. For specific storage advice consult Degussa's Technical Services Department.

Note

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Quality

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02/2004 Degussa-IR

MASTERSEAL® SP120

A two component solvent free pitch extended epoxy resin coating system

Description

MASTERSEAL SP120 is a two-component solvent free, liquid epoxy resin modified with refined coal tar pitch. The superior adhesion and chemical resistance of the epoxy resin, in combination with the flexibility and water resistant qualities of pitch produce a system that will provide a high build, ultra dense coating to protect concrete, other cementitious substrates, and metal, against a wide range of aggressive media. The coating will not support the growth of bacteria. In appearance, MASTERSEAL SP120 is smooth, glossy and black.

Typical applications

MASTERSEAL SP120 is used to provide a heavy duty protective, waterproof, and flexible coating. Uses include, the lining of tanks, pipes and ducting, coating concrete, asbestos cement, steel pipes and non ferrous metals.

MASTERSEAL SP120 is particularly suitable for use in sewerage work applications and in offshore or marine environments.

Advantages

- No primer required.
- High build coating.
- Easy application: brush, roller, spray.
- Economical.
- Excellent chemical resistance to aqueous media.
- Non-solvented.
- Excellent broad spectrum chemical resistance.
- Abrasion resistant.
- Seamless finish.
- Pre-weighed components.
- Long term corrosion protection.

Packaging

MASTERSEAL SP120 is supplied in 10 litre units.

Typical properties*

Properties listed are only for guidance and are not a guarantee of performance.

Pot life:	25°C	50 mines
	40°C	20 mines
Tack free time:	25°C	12 hours
	40°C	5 hours
Initial cure:		Within 24 hours at 25°C
Full chemical resistance:		7 days at 25°C

Standards

ANSI/ASTM: C881: Type III: Grade 2: Class C.
BS 5493.

Directions for use

Surface preparation:
As with all epoxy resin systems, surface preparation has a direct effect on the performance and durability of the system.

Surfaces to be coated should be sound, dimensionally stable, clean, free from laitance, paint, oil, grease, mould release agent and residual curing compound. Concrete must be fully cured. Grit blasting, high pressure water jetting or mechanical scabbling may be necessary to ensure full removal of cement laitance and deleterious matter. Metal surfaces should be prepared by blast cleaning preferably to SA2½.

Blow holes, pin holes and other surface defects should be filled with CONCRESIVE 2200.

Mixing instructions:
MASTERSEAL SP120 is supplied in preweighed units. Mix the reactor component separately for 1 minute, using a slow speed high torque drill with suitable paddle attachment then pour the reactor onto the base tin and mix the two components together for 2-3 minutes until a uniform streak free mix is obtained. During the mixing process, make sure the material around the sides and bottom of the container are well mixed.

Application:
MASTERSEAL SP120 can be applied by brush short hair roller or airless spray. A fast setting spray grade version MASTERSEAL SP120S is available for twin feed airless spray in 400ltr (2 x 200ltr) bulk packing.

Brush / roller application:
Apply the mixed material to a properly prepared substrate using a brush or short hair roller. The use of a painters tray is essential to extend the pot life and correctly meter the material on to the brush or roller. Working well into the substrate to give complete coverage with no visible pinholes; apply in two coats at the rate of 0.3 ltr/m² to obtain a DFT of 300 microns.

Spray application:
This is particularly recommended for large applications. A jet size of 23-26 thou has been found suitable. Spray the MASTERSEAL SP120S onto the prepared surface to give an even, pinhole free surface to achieve a minimum DFT of 300 microns in two coats. To achieve greater film thickness allow to cure before applying subsequent coats.

To give specified protection, a minimum of two coats should be applied. Subsequent coats should be applied within 36 hours.

Spray equipment, tools, brushes and rollers should be cleaned using Cleaning Solvent No. 2.

Coverage:
Note: Coverage is dependant on porosity and surface texture of the substrate.

General exposure:
0.3 litre per m² for a total DFT of 300 microns minimum applied in two coats of 150 microns.

Chemical resistance

Cured coating is resistant to:

- Distilled water
- Brine
- Effluent
- Barnacle growth
- Sewage
- Exhaust gases
- Marine bacteria
- Diluted acids and alkalis
- Salt solutions (Potassium, Sodium)

Watchpoint

No additions or omissions are required and on no account should attempts be made to split packs. Unsuitable in situations where foodstuffs or potable water will be in contact with the coating.

Storage

Up to 12 months when stored under cover, out of direct sunlight and protected from extremes of temperature.

Specification clause

Protection to those items indicated shall be with MASTERSEAL SP120 as manufactured by Degussa.
The coating shall be a two component, solvent free pitch extended epoxy resin based system. The dry film thickness shall be as specified by the Engineer and in general accordance with the manufacturer's recommendation.

Health and safety

As with all chemical products, care should be taken during use and storage to avoid contact with eyes mouth, skin and foodstuffs. Treat splashes to eyes and skin immediately. If accidentally ingested, seek immediate medical attention. Keep away from children and animals. Reseal containers after use.

Note

Field service, where provided, does not constitute supervisory responsibility. For additional information contact your local Degussa representative.

Degussa reserves the right to have the true cause of any difficulty determined by accepted test methods.

Quality and care

All products originating from Degussa facility are manufactured under a management system independently certified to conform to the requirements of the quality, environmental and occupational health & safety standards ISO 9001, ISO 14001 and OHSAS 18001.

02/2006 Degussa-IR

RHEOCRETE CNI

Corrosion-inhibiting admixture for steel reinforced concrete

RHEOCRETE CNI is a calcium nitrite based corrosion-inhibiting admixture for steel reinforced concrete. RHEOCRETE CNI admixture contains a minimum of 30% active ingredients by mass and meets ASTM C 494 interim requirements for Type C, Accelerating Admixtures.

Benefits

RHEOCRETE CNI admixture is a corrosion inhibitor that provides basic corrosion protection for steel reinforced concrete structures.

- Provides effective corrosion protection against chlorides in concrete.
- Extends the service life of reinforced concrete structures.

Packaging and availability

RHEOCRETE CNI admixture is available in 210 litre drums, and by bulk delivery.

Mechanism

In the alkaline environment of concrete, a natural passive ferric oxide layer forms on the surface of embedded reinforcing steel and protects the steel from corrosion. This passive oxide layer may break down in the presence of chlorides and moisture resulting in corrosion of the steel.

RHEOCRETE CNI admixture delays corrosion by repassivating defects on the steel surface. These defects are ferrous oxide ions that are susceptible to chloride attack. When chloride ions attack the ferrous ions, they combine to create a ferrous chloride complex (rust) and initiate pitting corrosion on the reinforcing steel. If untreated, chloride ions continue to attack newly exposed ferrous ions and form additional expansive corrosion products leading to staining, cracking and spalling of the concrete.

Nitrite ions contained in RHEOCRETE CNI admixture are effective in preventing ferrous chloride complex formation by reacting with defective ferrous oxide ions prior to chloride attack and reforming the passive layer. Nitrite ions surround the defective ferrous oxide ion and convert it to a more stable ferric ion species less susceptible to corrosion. This oxidation reaction serves to repassivate the reinforcing steel and re-establish the barrier between the steel and chlorides that initiate corrosion.

Applications

RHEOCRETE CNI admixture will effectively inhibit corrosion in all types of steel reinforced concrete including precast / prestressed and post-tensioned applications.

Adding Value to Concrete

RHEOCRETE CNI admixture is recommended for use in parking garages, bridge decks, marine structures, slabs, floors, and other reinforced concrete applications requiring corrosion protection against chlorides from deicing salts or marine exposure.
RHEOCRETE CNI admixture will also inhibit the potentially corrosive effects of chloride-bearing concrete-making ingredients.

Compatibility

RHEOCRETE CNI admixture may be used with Portland cements and mineral admixtures approved under ASTM, AASHTO, or CRD specifications. It is compatible with other chemical admixtures, including water reducers, superplasticizers, retarders and air entrainers. Chemical admixtures should be added separately to the concrete to ensure desired results.

Concrete setting time

Concrete setting times may be accelerated with the use of RHEOCRETE CNI admixture. If desired, a retarding or hydration control admixture may be added to the concrete mixture to offset the acceleration effects of RHEOCRETE CNI admixture. Please contact your local MBT representative for additional information on set-balancing admixtures for concrete.

Dosage

RHEOCRETE CNI is recommended for use at a rate of 5.0 to 30.0 L/m³ of concrete, depending upon the severity of the corrosion environment and the anticipated chloride loading of the structure.

RHEOCRETE CNI may be used to offset the potentially corrosive effects of chloride-bearing concrete-making ingredients, and in applications where the initial chloride ion content of the concrete may exceed code requirements or other specified chloride limits.

Chloride protection limits for RHEOCRETE CNI are as given in the dosage table. The limits for applications involving the use of chloride-bearing materials are based on a critical chloride-to-nitrite ratio of 0.90 in accordance with the recommendations of the Federal Highway Administration (FHWA). These limits may also be used in very severe corrosion environments for enhanced protection, if desired. The chloride protection limits given for all other applications, such as parking structures and bridges, are based on critical chloride-to-nitrite ratios that range from 1.20 to 1.50. Please contact your local MBT representative for additional information regarding dosage rates of RHEOCRETE CNI for your application.

RHEOCRETE CNI Dosage L/m³	Chloride Protection Limit, kg/m³	
	With Chloride-Bearing Materials	All Other Applications
5.0	1.2	---
10.0	2.4	3.6
15.0	3.6	5.9
20.0	4.8	7.7
25.0	6.0	8.9
30.0	7.2	9.5

MBT recommends that steel reinforced concrete structures that will be exposed to chlorides in service should be designed in

accordance with ACI 318, ACI 357, CSA, AASHTO or other applicable codes.

Chemical composition

RHEOCRETE CNI admixture contains a minimum of 30% calcium nitrite by mass as an active ingredient. RHEOCRETE CNI is identical in composition and mechanism to other commercially available 30% calcium nitrite corrosion-inhibiting admixtures; and at equal dosage rates, provides similar performance and corrosion protection.

The water content of RHEOCRETE CNI admixture is approximately 7.3 pounds per gallon. This water contributes to the consistency of the concrete mixture and the hydration of the cementitious materials. The water contributed by RHEOCRETE CNI should be used in the calculation of the water-to cementitious material ratio of the concrete.

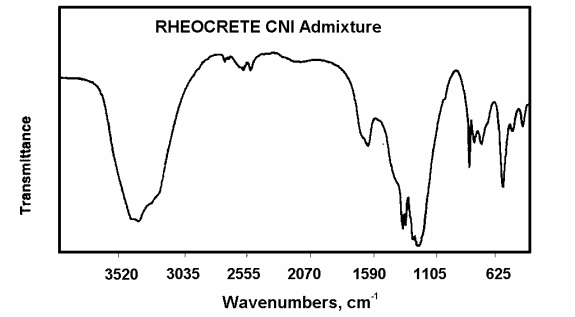
Non-chloride

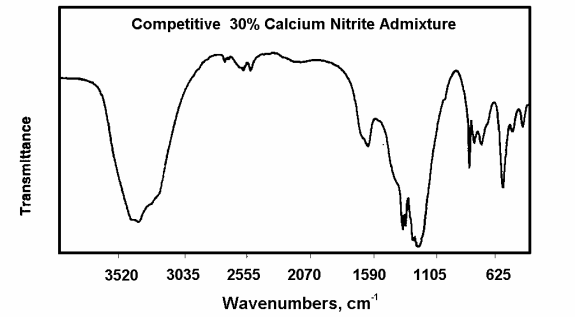
RHEOCRETE CNI admixture will not initiate or promote corrosion of reinforcing steel embedded in concrete, prestressed concrete or concrete placed on galvanized steel floor and roof systems. Neither calcium chloride nor any chloride-based ingredients are used in the manufacture of RHEOCRETE CNI.

Temperature precaution

RHEOCRETE CNI admixture can be stored at temperatures between –12° to 38°C. If RHEOCRETE CNI admixture freezes, it can be fully reconstituted by thawing and mechanical agitation. **Do not use pressurized air for agitation.**

FOURIER TRANSFORM INFRARED (FT-IR) SPECTRAL COMPARISION





Note

Field service, where provided, does not constitute supervisory responsibility. For additional information contact your local Degussa representative.

Degussa reserves the right to have the true cause of any difficulty determined by accepted test methods.

Quality

All products produced by Degussa certified manufacturing facilities, are produced to conform to systems designed to meet internationally recognised quality standards.

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