

APPLICATION MANUAL FOR VARADEX PREMIUM

MECHANISM

After treatment with **VARADEX PREMIUM**, the reaction between the free lime, moisture and **VARADEX PREMIUM** chemicals is under way. **VARADEX PREMIUM** penetrates the concrete forming chemical complexes which substantially restrict the capillaries. The concrete is now watertight but still allows water vapour to pass. The **VARADEX PREMIUM** chemical complexes remain in the concrete, ready to continue their migration deeper into the concrete whenever water is present. In consideration of the waterproofing action of **VARADEX PREMIUM**, it is important to understand that the process outlined above does not happen overnight. The growth of crystals within the host concrete relies on the action of osmosis which carries the active ingredients from the surface applied **VARADEX PREMIUM** treatment deep into the host concrete where crystals are formed. Water plays an essential role as the transport mechanism for the **VARADEX PREMIUM** chemicals. This is why the application of **VARADEX PREMIUM** needs to be protected from the drying action of direct sunlight during the first 5 days after application. Also, surfaces to which **VARADEX PREMIUM** is applied must be kept damp for 5 days to facilitate the transport of the chemicals into the concrete and the resulting crystal growth.

Only after 5 days can the daily damping of the **VARADEX PREMIUM** be stopped. Over the following day or so, the concrete should then begin to dry. In remedial applications such as basement walls where dampness has been evident for some time, the wall should begin to dry out a day or so after water curing of the **VARADEX PREMIUM** has ceased.

In applications where negative side waterproofing is required, **VARADEX PREMIUM** is the ideal choice because of its ability to waterproof from within the host concrete thereby allowing it to support very high negative side water heads.

INSTRUCTION FOR USE

SURFACE PREPARATION :

When applying **VARADEX PREMIUM** to existing concrete, all surfaces to be waterproofed should be clean, sound and free of concrete curing compounds, form release agents, paints and all other coatings. Concrete surfaces should be prepared by water blasting, grit blasting or wire brushing in order to remove the laitance and open the pore structure of the concrete in preparation to receive the **VARADEX PREMIUM**. Concrete surfaces should be free from major imperfections. Large repairs may be carried out using a suitable cementitious repair mortar such as **VARACON S**

Priming:

Priming is not normally required on good quality concrete substrates, however all surfaces must be pre-watered before applying **VARADEX PREMIUM**

MOVEMENT JOINTS

All expansion and movement joints should be sealed with a suitable joint sealant after application of the **VARADEX PREMIUM**. Consult AKARSH Specialities for advice on the joint sealing method best suited to your application.

Cracks:

All shrinkage and non-moving structural cracks having a width equal to or less than 0.3 mm will be waterproofed by the application of **VARADEX PREMIUM**. Static cracks wider than 0.3 mm must be routed out to form a "V" shaped groove with a hand or power chisel to a depth and width of approximately 25 mm. These larger cracks must be repaired by priming the chiseled out crack with two coats of **VARADEX PREMIUM**, followed by the application of **VARACON S** to fill the rebate flush with the concrete

surface. All of the above products must be installed “green” on “green”, before the previous layer has dried out.

Live cracks cannot be waterproofed with **VARADEX PREMIUM**. If live cracks are present, **VARAGUARD SFX** an elasticised cementitious membrane should be considered.

WATER SEEPAGE

All water seepage must be stopped using **VARAPLUG** prior to the application of **VARADEX PREMIUM**.

APPLICATION

VARADEX PREMIUM is supplied in the form of a dry powder and can be applied in as a dry powder or as a slurry by brush or spray. No mixing is required for dry powder application. When used in slurry, **VARADEX PREMIUM** is mixed with clean tap water in the ratio of 5 parts **VARADEX PREMIUM** to 2 parts water by volume. The **VARADEX PREMIUM** and water must be thoroughly mixed using a slow speed electric drill (300 rpm) for 3 minutes immediately prior to use. Mix stir the mixture frequently. If the mixture starts to set, DO NOT add more water, simply stir the product to restore workability.

Ensure that all surfaces to which **VARADEX PREMIUM** will be applied are pre-watered. The correct amount of pre-watering is measured by the substrate taking on greenish appearance, however there must be no free surface water. A simple check can be performed by placing a hand on the pre-watered substrate and removing the hand. If the hand is wet from contact with the substrate, then the substrate is too wet and must be allowed time for the excess surface water to evaporate. Surfaces that have been pre-watered and dry out before application of the **VARADEX PREMIUM** must be pre-watered again.

Apply the first coat from the base of the wall and work towards the top using a stiff bristle brush in a horizontal scrubbing action or by spray using a Hopper Gun. When using a Hopper Gun, immediately after application of the first coat, scrub the **VARADEX PREMIUM** into the concrete surface with the stiff bristle brush using a horizontal action.

After 4 – 5 hours apply the second coat ‘green on green’ so that a chemical bond is achieved between the two coats. Do not apply more first coat during a day’s work session than can be overcoated with a second coat during the same day.

When applying **VARADEX PREMIUM** by spray using a Hopper Gun, ensure that the gun is held directly perpendicular to the surface at a distance of about 500mm to ensure that the maximum impact energy is applied to the surface and to prevent any shadowing across small surface imperfections.

Besides temperature, humidity also has an influence on waiting times between coats and resistance to rain. Ensure that the freshly applied **VARADEX PREMIUM** is protected from rain for the first day, and the drying effects of the sun and wind during the first 5 days of cure is applied in two coats by brush or spray at an application rate of 0.75 kg/m² per coat.

ACCELERATING THE CURE

VARADEX PREMIUM can be mixed with a blend of water and **VARASET NO 1** to accelerate the cure of **VARADEX PREMIUM**. Applications requiring a rapid setting time include stopping general water leaks, plugging leaking construction joints, plugging leaks through cracks and porous concrete. The main advantage of using **VARADEX PREMIUM** mixed with **VARASET NO 1** versus **VARAPLUG** is that the **VARADEX PREMIUM – VARASET NO 1** mix offers a longer setting time 1 – 3 minutes combined with the advantage of in-depth crystal growth waterproofing. **VARAPLUG** offers better setting performance and is the preferred option when plugging fast flowing or high pressure leakage. When using **VARADEX PREMIUM** with **VARASET NO 1**, pre-mix the **VARASET NO 1** with water in the required ratio. A ratio of 1 : 1 water to **VARASET NO 1** will be suitable for most applications. The speed of cure can be adjusted by varying the **VARASET NO 1** / water ratio from 100% water for a normal cure rate.

When plugging water seepage with **VARADEX PREMIUM** and **VARASET NO 1**, mix very small quantities (approx 400 ml) at a time in a small plastic bucket and add only the required amount of **VARASET NO 1** / water pre-mix to produce the desired application consistency. A hand putty consistency. A hand putty consistency prepared by mixing four parts powder to one part **VARASET NO 1** / water pre-mix by volume will

be required for plugging weeping cracks. Mix the **VARADEX PREMIUM** powder with the **VARASET NO 1** / water premix in a small plastic container with a spatula for about 30 seconds. After mixing in the plastic container, remove the mix by hand (wear plastic gloves and work the mix by hand. The temperature will increase and the mortar will begin to harden after about 1 minute. Immediately pack the mortar firmly into the prepared rebate.

Ensure that cracks are chiselled out to a width and depth of 30 – 50 mm before plugging. In situations where high water pressure is present behind a leaking crack or construction joint the plugging operation will be more effective if a hole is drilled through the concrete and a plastic tube installed to release the pressure. Plug all the areas around the tube by hand packing the mortar into the rebate and allow at least an hour for the plugged areas to set before removing the plastic drainage tube and immediately plugging the hole with a **VARADEX PREMIUM / VARASET NO 1** mix or with **VARAPLUG**.

For application of a fast setting slurry to porous weeping concrete, use five parts powder to two parts **VARASET NO 1** / water premix by volume and apply by brush as normal.

Note: The water temperature used for mixing **VARADEX PREMIUM** has a large effect on the setting time. Use cold water in summer and avoid using water from a hose that has been lying in the sun. In very cold winter conditions warm water may be used to accelerate the cure.

HEALTH & SAFETY

VARADEX PREMIUM, VARASHIELD 20 and **VARAPLUG** contain cement powders which, when mixed with water or become damp, release strong alkalis which can be harmful to the skin. **VARASET NO 1** is hazardous. During use avoid contact with the skin and eyes.

Wear suitable protective clothing, gloves and eye protection. If working in confined areas, suitable respiratory protective equipment must be used. The use of barrier creams provide additional skin protection. In case of contact with the skin, rinse with plenty of clean water, then cleanse with soap and water. If poisoning occurs, contact a doctor.

If swallowed, DO NOT induce vomiting – give a glass of water. If in eyes, hold eyes open, flood with water for at least 15 minutes and contact a doctor. If skin contact occurs, remove contaminated clothing and wash skin thoroughly.

For information on the above product refer to Material Safety Data Sheet.