StenSeal® 2K

Jet Fuel Resistant, Cold Applied, Two Component Joint Sealant Application Manual

Product Profile

StenSeal® 2K is a two component, cold applied, chemically curing, self leveling, polyurethane based, coal tar modified, elastomeric, economic joint and crack sealant with high abrasion resistance and adhesion, resistant to jet fuels, hydraulic fluids and oils and dynamic movements, suitable for heavy traffic conditions.

Uses

StenSeal® 2K is produced especially for runways, park areas, terminals and ramps, cargo fields and roads at airports. It is also a very compatible and economic joint sealant for highways subject to all types of traffic, parking places, secondary roads, bridge connections, ramps, stadiums, industrial floors, pavements, fuel oil stations, roads and concrete fields at petrochemical and other industrial facilities. It is suitable for all kinds of horizontal outdoor joints.

Joint Design

(See "Joint Design" Document for detailed information)1. Joint width must not be less than four times the expected movement or 6 mm.2. Up to 12 mm width, joint sealant depth must be equal to the width.3. Between 12 and 25 mm joint widths, sealant depth must be equal to 80% - 50% of the width.4. For wider joints, sealant depth must be adjusted as 20 to 30 mm. Depths are adjusted by using joint backer materials.5. For localizing the cracks caused by contractions that may occur during and after curing at new concrete pavements, design and sealing of the contraction joints left before cure or saw cut after cure are also important.

Crack Preparation

If static cracks are wider than 2 mm, a 6 - 12 mm wide and 10 - 25 mm deep joint must be saw cut there. If dynamic cracks are wider than 1 mm, a joint with a width of crack width + 12 mm and depth of twice the width must be saw cut and backer material must be used.

Application Steps

1. Surface preparation and cleaning of the joint.

(See "Surface Preparation: Joint Sealant Application Surfaces" document for detailed information)• Joint surfaces must be clean and dry.• Oil, grease, bitumen and sealant residues must be completely removed.• Loose materials on the joint edges must be removed; broken joint edges must be repaired.• Joints must be clean and dry (Picture 1).



Picture 1a - General joint cleaning

Picture 1b - Cleaning of the joint by mechanical methods Picture 1c - Cleaning of the joint with pressurized air

WARNING: StenSeal® 2K is affected from water before curing like all other polyurethane materials. Therefore the joints must be dry and the sealant must not contact water until chemical curing occurs. In order to facilitate the cleaning of smeared sealants on joint edges, masking tape can be placed on the sides of the joint.



application

Picture 2 – Masking tape

2. Primer Application

(StenAst®)• StenAst® minimizes the negative effect of possible contamination, concrete moisture and loose materials on the floor (Picture 3).• StenAst® ensures that the joint sealants adhere better on the application floor and maintain this property for many years.• It is important to select the StenAst® compatible with the material and the surface.• Points mentioned in the user manual of compatible StenAst® material must be observed.



Picture 3 – Primer Application

3. Backer Material

• A backer rod which is non-adhesive to the sealant must be placed inside the joint in order to adjust correct sealant depth.• Closed cell polyethylene (PE) rod can be used.• Diameter of the rod must be 10 - 25% larger than the joint width and it must be placed tight in the joint.• Rods must not be damaged during placement.• In wide joints, semi-rigid materials like polystyrene foam can be used instead of rod. In such cases, it is helpful to place a masking tape over backing material in order to prevent adhesion to the sealant. (Picture 4 - Picture 5)



Picture 4 – Joint backer rod placement



Picture 5 – Placement of joint backer rod apparatus

4. Material Preparation

First required amount of sealant is determined. Following aspects must be considered while determining this amount:• Size of the application area,• Capacity of the application apparatus and the application team,• Pot life of **StenSeal® 2K** at application temperature. Calculated amount of material is placed at a safe location near the application area. If the ambient temperature is low, it is helpful if the materials are placed and kept at a heated space for a couple of days before the application. For preventing contamination with the material, a mattress etc. is temporarily placed over the area where mixing and application equipment filling and maintenance will be carried out.• **StenSeal® 2K** consists of two components, namely A and B.• Components are packed in proportions required for the application.• Container of component A is big enough to take component B too.



Picture 6a – Mixer A

Picture 6b - First component A is homogenized

Picture 6c- Component B is added to Component



Picture 6d - Component A and B are mixed

Picture 6e – Material is filled in the application gun

Picture 6f – It is applied with the gun.

Component A is thixotropic. It is homogenized before the application via a low speed (100/500 rev/min) drill and a suitable paddle (Picture 6a) for a few minutes so that it is shear thinned, in other words its viscosity decreases (Picture 6b).• Component B is poured into the container of component A and they are mixed for 4 – 5 minutes (Picture 6c).• During mixing the mixer paddle must be moved inside the container and it must be ensured that no air is trapped inside the mixture (Picture 6d).• Mixing by hand is not recommended. It is difficult to obtain a homogeneous mixture by hand mixing.• Mixed material is filled in the sealant gun / applicator (Picture 6e).• Nozzle of the sealant gun must fit in the joint and this nozzle must slide over the backer material inside the joint while applying the sealant (Picture 6f).Consequently;• No gap is left below the sealant.• Sufficient amount of sealant is applied.Where necessary, sealant surface is evened by means of a spatula after the end of its pot life! Material must not be used after the end of its pot life!

5. Sealing Cracks

Repairing and sealing the cracks that occur especially on concrete pavements at the airports and highways is important. StenSeal® 2K can be used for such purposes too. Cracks prepared as specified in Crack Preparation Section are sealed in the same manner with the joints. In areas with frequent micro cracks, cracks on the surfaces must be sealed with impregnating materials like StenAst® 3EP.

Limitations and Warnings

• It is not recommended for joints narrower than 6 mm due to application difficulties.• It must not be used in wet, dirty, greasy, bituminous joints. It is important to clean such joints before the application in order to ensure a good adhesion.• Despite its high bearing resistance; studded tire, tire chain, high heeled shoes cause damage.• During the application, ambient temperature must not be higher than 35°C and lower than 10°C. If an application must be conducted outside these conditions, contact **STENKIM**.• The application should not be carried out if heavy fog, rain, snow or hail is forecasted in the next 24 hours.• The material must not contact water after the application until complete curing occurs and it must be protected from dust. **Storage**

• The material must be kept in dry indoor storages.• It must not be exposed to direct sunlight.• Storage temperature must be 5 to 30°C.• Stored in these conditions, the shelf life is one year. **Maintenance**

Damaged parts should be repaired. Suitable primer must be used during repair.