# DOCUMENTATION

## SINTEF 030 - 0293

With reference to the national code of building regulations of 27 June 2008 with the Norwegian building regulations of 1 July 2010 and belonging guidance, we document, on the basis of test certificates, evaluations and installation instructions, that this product meets the requirements of the Norwegian authorities as to the fire related qualities.

**Building material:** **FS GPG sealant for ventilation channels and floor drain**
**(The product is also marketed under the trade name Glava GPG)**

**Product responsible:** **Firesafe as**
**Box 6411 Etterstad, 0605 Oslo, Norway**

The documentation is conditional on that the product is in accordance with the specifications given in the appendix and that the product is applied and used in accordance with regulations and all important details in this process follow precisely what is described in an installation manual, which is checked by SP Fire Research AS. Both the installation manual and the SP Fire Research AS Documentation shall follow the product or be available for the purchaser, user, inspector and the local authority.

The product shall be labeled with **SINTEF 030 - 0293**, trade name, product responsible and/or manufacturer together with a reference to the production for traceability. The labelling shall have good visibility.

Detailed product design and principle design of installation details are described in "Standard construction details for FS GPG sealant for ventilation channels and floor drain, belonging to Documentation **SINTEF 030 - 0293**". The version of the construction details filed at SP Fire Research AS at any time is a formal part of the approval.

The product must have at least one annual, external inspection related to the internal system for control of quality. The inspection is adjusted to the type of product and other existing inspection arrangements. Details specified in a written agreement with NBL.

First issued: **2001-05-14.** A renewal may be issued based on a written application. Termination by the applicant shall be asked for in writing and with 6 months notice. SP Fire Research AS may withdraw this documentation when irregularities or misuse happens and written instructions are not respected.

**Issued: 2014-07-01**
**Valid until: 2015-07-01**

Asbjørn Østnor
Discipline Manager Documentation

Jan P. Stensaas
Project Manager Documentation

**This document is an English version of the Norwegian documentation SINTEF 030 - 0293 dated 2014-06-30.**

**SP Fire Research AS**

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**Appendix 1 to Documentation SINTEF 030 - 0293 of 2014-07-01**

## 1. Owner of the Documentation

Firesafe as
Box 6411 Etterstad,
0605 Oslo, Norway
www.firesafe.no

## 2. Manufacturer

Firesafe AS, Norway.

## 3. Product Description

FS GPG is a powder which consists of gypsum, perlite and glass fiber. By addition of water a mortar is formed, which cures in a short time to a strong and fire resistant material. FS GPG is available in bags of 25 or 15 liters, and plastic buckets of 10 or 5 liters.

## 4. Fields of Application

FS GPG sealant for ventilation channels and floor drains is used as fire sealing system for penetration of ventilation channels in flexible and concrete walls of plaster and in floors of concrete, as well as for Joti KS and Joti K floor drains in the concrete floors.

Joti KS and Joti K are floor drains of epoxy coated cast iron and plastic, respectively.

## 5. Properties

Item 6 shows the fire resistance of the ventilation penetration seals with uninterrupted and interrupted channels insulation in walls and floors. Table 1 and 2 show the fire resistance of penetrations of Joti KS floor drain and Joti K floor drain sealed with FS GPG sealant, respectively.

## 6. Special Conditions for Use and Installation

FS GPG sealant for ventilation channels and floor drains shall be installed according to installation details shown in "Standard Construction Details for the product belonging to SP Fire Research AS documentation SINTEF 030 - 0293".

*1. Penetration seals for ventilation channels*

Documentation includes only the results from tested penetration seals around single channels. Joint width around the duct shall not exceed 100 mm and the joint shall be sealed with cut mineral wool coated with GPG. Details regarding suspension and stiffening, given in the belonging installation manual must be followed.

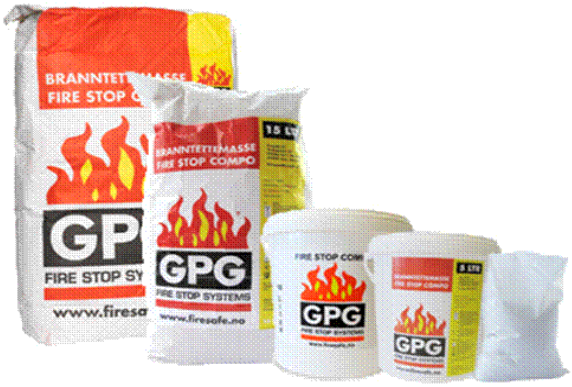


Fig.1
FS GPG sealant for ventilation channels and floor drains.

NB! It is assumed that the channel only is exposed to external fire load and that any risk of fire spreading through the channel volume is effectively counteracted by the use of fire dampers.

*a) Penetration in walls.*

- The wall may be flexible or bricked/casted, thickness ≥ 100 mm.
- Dimension of rectangular channel: 100 x 100 mm ≤ HxB ≤ 1000 x 700 mm.
- Dimension of circular channel: 100 mm ≤ D ≤ 1000 mm.
- Joint sealing 50 mm mineral wool 100 kg/m$^3$ centered with 25 mm GPG on both sides.
- Channel insulation 2 m wired mat, 30 mm, 80 kg/m$^3$, centered in relation to the wall.
- The channel insulation may be uninterrupted through the wall or interrupted by the joint seal.

***The fire resistance of the penetration:***

Both interrupted and uninterrupted channel insulation satisfies the criteria for heat insulation and integrity for **120 minutes**.

*b) Penetration in floors.*

- Concrete floor, thickness ≥ 150 mm.
- Rectangular channel dimension 100 x 100 mm H x ≤ B ≤ 1000 x 1250 mm.
- Circular channel dimension: 100 ≤ D ≤ 1250 mm.
- Joint sealing 50 mm mineral wool 140 kg/m$^3$ centered and 50mm GPG at the upper side.
- Channel insulation 2 m wired mat, 30 mm, 80 kg/m$^3$, centered in relation to the floor.

– The channel insulation may be uninterrupted through the wall or interrupted by the joint seal.

***The fire resistance of the penetration:***
The uninterrupted channel insulation satisfies the functional requirements for insulation and integrity for **60 minutes**.

The interrupted channel insulation satisfies the functional requirements for insulation and integrity for **90 minutes**.

*2. Penetration seal for Joti KS and Joti K floor drain*
Floor drain penetration seals for use in horizontal concrete floors. For use in all types of floors with membrane or floor covering (thickness: Joti K floor drain max. 2 mm, Joti KS drain max. 1.5 - 2 mm). Outlet dimension: max. 75 mm. Unless otherwise noted, drains shall be connected to cast iron pipes.

## 7. Basis for the Documentation

This documentation is based on the properties that are documented in the following reports:

- Test report 103080.39A and B both reports dated 2013-09-20. Tested according to NS-EN 1366-3: 2009.
- Test report 103080.16 dated 2005-10-18, evaluation report103080.18 dated 2007-01-15 and test report 103080.18 dated 2006-11-23. Tested according to NS-EN 1366-3: 2004.

## 8. Validity

The validity of the appendix is uniquely linked to the first page of the document with the requirements, conditions and time stamps that are presented there.

## 9. Technical Management

Project manager for this approval is Jan P. Stensaas, Discipline Manager Documentation, SINTEF NBL as, Trondheim.

Tabell 1
The fire resistance of penetration seals of Joti KS floor drain sealed with FS GPG sealant.

| Aperture in concrete floor (mm) | Thickness of floor (mm) | Type of sealant (throughout the entire thickness of the floor) | Fire resistance[1] (minutes) |
|---|---|---|---|
| Ø 200 | 200 | FS GPG sealant | **90** |
| Ø 200 | 150 | ” | **30** |
| Ø 152 | 200[2] | ” | **120** |
| Ø 152 | 150[3] | ” | **60** |
| Ø 250 | 200[4] | ” | **90** |

[1] Satisfies the functional requirements with respect to insulation and integrity given in the column.
[2] The total thickness of the floor must be 240 mm. The thickness of the concrete floor must be 200 mm and the thickness of the casted top layer must be 40 mm. In the bottom of the aperture 30 mm Isover Fire Protect 150 board (150 kg/m$^3$). The aperture must be sealed throughout entire thickness of the floor with FS-GPG. In order to apply the mastic, the FS-GPG sealant must be "floating".
[3] The total thickness of the floor must be 190 mm. The thickness of the concrete floor must be 150 mm and the thickness of the casted top layer must be 40 mm. Otherwise, the same conditions as mentioned above apply.
[4] Can be used with attached PP pipes Rehau Ø75 x 1.9 mm.

Tabell 2
The fire resistance of penetration seals of Joti K floor drain sealed with FS GPG sealant.

| Aperture in concrete floor (mm) | Thickness of floor (mm) | Type of sealant (throughout the entire thickness of the floor) | Fire resistance[1] (minutes) |
|---|---|---|---|
| Ø200 | ≥ 200[2] | FS GPG sealant | **30** |

[1] Satisfies the functional requirements with respect to insulation and integrity given in the column.
[2] Can be used with attached VVS pipes of PP: Ø75 x 2.7 mm.