



Construction

Spraydon TI

Data Sheet C/TA/C-5

Use with:

Cafco Bondseal	See Data Sheet C/TA/A-1
Spraycrete	See Data Sheet C/TA/T-4
Fixings	See Data Sheet C/TA/F-1



Spraydon TI applied for thermal insulation and fire protection to a basement carpark

Spraydon TI is a dry spray applied, single package factory controlled premix, based on a mixture of mineral wool and cement binders, for internal use or when protected from direct exposure to the weather.

Spraydon TI is a durable, lightweight coating that offers combined thermal and acoustic properties in addition to fire protection. It is used for application on steel and concrete frames, concrete soffits, metal decks and return air plenums.

Spraydon TI can be sprayed around any complex shape.

The application of Spraydon TI provides an economical and joint-free barrier to thermal transmission and offers excellent sound absorption.

Building types that will benefit from the use of Spraydon TI, include a wide range of educational, leisure and entertainment centres or commercial projects, including the thermal insulation of ground floor car parks.

Properties and performance

Colour and finish

Off-white. Surface can be textured or tamped.

Minimum practical thickness

10mm.

Theoretical coverage

103m²/tonne at 65mm thickness.

Number of coats

One or more as required.

Cure

By hydraulic set.

Initial set

6 to 8 hours at 20°C and 50%RH.

Density

200kg/m³ ± 15% for fire resistance and sound absorption.
145kg/m³ ± 15% for thermal insulation.

Combustibility

Non-combustible to BS 476: Part 4: 1970.

Flame spread

Class 0 as defined by the Building Regulations.

Smoke generation

Does not contribute to smoke generation.

pH value

12 – 12.5.

Properties and performance (cont)

Fire resistance

Structures protected with Spraydon TI have been assessed for up to 120 minutes fire resistance as defined in BS 476: Part 8 for cellulosic fires.

The fire resistance test results relate solely to the constructions tested and test conditions imposed.

Cafco International provides computer based thickness calculations to meet specific fire ratings on receipt of beam and column section details.

Thermal conductivity

0.036W/mK at a density of 145kg/m³.

Sound absorption

Noise Reduction Coefficient (NRC) up to 0.85. See Table 2.

Thermal insulation thickness

Establishing the correct thickness

The thermal insulation requirement for a building will be expressed as a U-value. This is typically 0.45W/m²K to an undercroft car park, for most new buildings. However, U-values of 0.3W/m²K and 0.6W/m²K are not uncommon. Part L of the Building Regulations gives guidance.

Cafco International is able to calculate the thickness of Spraydon TI required in order to achieve the specified U-value of a construction. In order to do this the following information is required:

- Specified U-value to be achieved
- Detailed section showing the build up of the construction to be insulated.

Consult Cafco International for further advice.

Fire protection thickness

Establishing the correct thickness

The thickness of the fire protection for a given period of fire resistance in a cellulosic type fire, relates to the Hp/A ratio of the section. Hp/A is the ratio of the heated perimeter exposed to fire to the cross-sectional area of steel.

All column and beam sections have their own specific Hp/A ratio. Refer to the 'Technical Introduction' to establish the Hp/A ratio for a particular beam or column section, or contact Cafco International.

Then use Table 1 below to ascertain the thickness of Spraydon TI that meets the required period of fire resistance.

Table 1: Spraydon TI thicknesses for I section beams (3 sided). Critical temperature 550°C.

Hp/A	Spraydon TI thickness (mm) for fire resistance of:			
	30 (mins)	60 (mins)	90 (mins)	120 (mins)
30	13	13	13	17
50	13	13	18	26
70	13	14	23	33
90	13	18	29	39
110	13	19	33	44
130	13	22	35	48
150	13	23	38	52
170	13	24	40	56
190	13	26	43	58
210	13	27	44	61
230	13	29	47	64
250	13	30	48	66
270	13	31	49	68
290	13	31	51	70
310	13	33	52	72

Sound insulation thickness

Spraydon TI has been extensively tested and used as a medium for absorbing sound, and being spray applied presents a monolithic surface.

The Noise Reduction Coefficient (NRC) is the average absorption of sound in the 250 - 2000 Hertz range. In Table 2, figures are also given for 125 Hertz as this represents the pitch of the average male voice and has relevance to office design.

Table 2: Spraydon TI thicknesses (at a density of 200kg/m³) & sound absorption

Spraydon TI thickness (mm)	Substrate	Air void below substrate	Frequency (Hz)						NRC Rating
			125	250	500	1000	2000	4000	
			Absorption coefficient						
• 10	Solid	Nil	0.08	0.19	0.37	0.61	0.79	0.78	0.50
• 13	Solid	41mm	0.38	0.20	0.57	0.73	0.75	0.74	0.60
• 19	Metal lath	41mm	0.49	0.65	0.88	0.93	0.90	0.87	0.85
• 25	Solid	41mm	0.59	0.50	0.71	0.91	0.91	0.88	0.75
+ 25	Solid	Nil	0.06	0.24	0.78	0.95	0.93	0.97	0.72

- Established by Western Electro Acoustic
- + Established by University of Salford

Preparation

Typical substrates

Concrete soffits, metal decks, steel and concrete structural frames, and return air plenums.

Substrate preparation

The substrate shall be clean, dry and free from dust, loose millscale, loose rust, oil and any other condition preventing good adhesion.

Concrete surfaces should be prepared with the application of **Cafco Bondseal**.

Application

Initial steps

Application of Spraydon TI must be carried out by an applicator recognised by Cafco International and applied in accordance with the Installation Guide available from Cafco International.

Methods

Spraydon TI is mixed with potable water at the nozzle of a spraying machine approved by Cafco International.

Limitations

Spraydon TI may be applied if the substrate or air temperatures are a minimum of 4°C and rising, and must be maintained for 24 hours before, during and 24 hours after application. Maximum air and substrate temperature is 45°C.

Substrate temperature should be at least 2°C above dewpoint temperature.

Topcoating

General considerations

Under certain circumstances, **Spraycrete** may be applied to the finished tamped Spraydon TI to give a better resistance to impact damage and moisture ingress, together with an improved appearance.

Alternatively, a coat of **Cafco Bondseal** may be applied.

Packaging, storage, shelf life

Packaging

20kg bags.

Storage

Above ground and kept dry.

Shelf life

12 months maximum.

Environmental

Do not discharge into drains, watercourses or soil.

Health and safety

Cafco International's activities are conducted with due regard to all statutory requirements with appropriate safeguards against exposing employees and the public to health and safety risks.

A full copy of Cafco International's Health, Safety and Environment Policy document is available on request.

See Safety Data Sheet (including COSHH Regulations) Code Reference **Saf-21**.

Quality assurance

Cafco International operates a quality system in accordance with BS EN ISO 9002: 1994, and has received full accreditation by BSI to these standards.

Operating to these standards means that all activities, which have a bearing upon quality, are set out in written procedures. Systematic and thorough checks are made on all materials and their usage. Test equipment is subjected to regular checks and is referred back to national standards.

The information given in this data sheet is based on actual tests and is believed to be typical of the product. No guarantee of results is implied however, since conditions of use are beyond our control.

Further information



Bluebell Close
Clover Nook Ind. Park
Alfreton
Derbyshire
DE55 4RA UK

Tel: +44 (0) 1773 837 900
Fax: +44 (0) 1773 836 710
Email: info@cafcointl.com
Website: www.cafcointl.com