Bitumen Waterproofing
Single Ply Waterproofing

Product Data Sheet

HYTHERM® CG (Cellular Glass) INSULATION TORCHED

Non-combustible, high performance flat board or tapered* insulation for warm roof constructions

Hytherm CG Torched is a robust, non-combustible insulation material that can play a crucial role in the fire safety of a building as well as providing long-lasting thermal performance in a torch-applied warm roof waterproofing system.

Hytherm CG Torched is manufactured from specially graded recycled glass (>60%) and natural raw materials such as sand, lime, dolomite. The cellular glass slabs are bonded together with an upper surface coating of a bitumen layer covered with a PE foil to allow direct torching of waterproofing membranes. The lower surface is covered with white glass fleece. The insulations core material does not combust, support fire, produce fumes or present a fire risk with the building structure and meets the most stringent European fire classification.

The inherent characteristics of this robust material ensure that Hytherm CG Torched insulation provides secure, long-lasting performance without degradation together with design flexibility on the most aesthetically and technically demanding of projects.

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Key benefits

Reaction to fire Euroclass E (core material complying with Euroclass A1, non combustible, no toxic fumes

High compressive strength due to cell structure. Long-term compressive loads can be applied without movement of deformation.

Waterproof due to hermetically sealed closed cell glass structure. Does not absorb water or swell.

Vapour and gas resistant; provides constant thermal performance for the lifetime of a building.

Dimensionally stable; no warping, creep, swelling or shrinkage.

Resistant to acids and organic solvents; not damaged by aggressive environments.

Rot- and vermin-proof due to being inorganic; no risk of nesting or seed germination.

User-friendly; easy to cut with simple tools and to install.

Ecological; contains recycled glass and can be safely recycled after use.

Environmental credentials:

Inert and non-toxic
Manufactured to ISO 14001.
GWP (Global Warming Potential) = <1.5
ODP (Ozone Depletion Potential) = zero

Performance

Hytherm CG Torched has a hermetically sealed, closed glass cell structure. It is non-toxic, does not combust or support fire nor does it produce fumes. Its structure also prevents water penetration or tracking by capillary action. If fully bonded (including the board edges) the insulation and its adhesive are vapour tight, fulfilling both insulating and air and vapour control properties in one material. Please contact Axter for more details.

Use

Hytherm CG Torched is designed for use as flat board or tapered insulation in a torch-applied warm roof bitumen waterproofing system on concrete, metal or timber decks.

It can be used as a single or multi-layer insulation system where it is mechanically fixed or bonded using an Axter approved adhesive.

Due to its low coefficient of thermal movement, Hytherm CG is simply bonded onto the deck with adhesive, avoiding thermal bridging and corrosion of mechanical fixings. It is ideal as part of waterproofing design for heavy traffic roofs due to it having one of the highest compressive strengths, including at edges, of any insulating material.

Adhesives

The following Axter adhesives are recommended for use with Hytherm CG Torched insulation:

Hyrastik Evo - non-flammable, solvent-free, polyurethane cold applied adhesive

Hyrastik Evo is a high performance, single-component, moisture-curing polyurethane insulation adhesive developed to provide a safe, flame free and effective solution to bonding insulation securely to roof decks.

Supplied in a 6 litre tin which includes a spout for simple pouring.

Product	Hyrastik (100% solids)	**Open Time (10˚C)**	15 minutes
Appearance	Brown	**Open Time (20˚C)**	7 minutes
Application Temperature	5 - 30˚C	**Open Time (30˚C)**	4 minutes
Temperature Resistance	-30 - 100˚C	**Coverage**	30-60 m^2 / 6l (6.5kg)
Cure Time (10˚C)	60 minutes	**Viscosity (CPS)**	4,000
Cure Time (20˚C)	30 minutes	**Storage temperature**	5 - 30˚C
Cure Time (30˚C)	15 minutes	**Environmental**	Solvent-free Non-flammable

Full details are given in the Axter Hyrastik Evo Product Data Sheet and Safety Data Sheet.

Starcoat R - cold applied bitumen adhesive

Starcoat R is a single-component, polyurethane bitumen adhesive for insulation, with integrated anti-root protection. It is a flame free, cold applied product and is ready to use with no mixing.

Starcoat R is also ideal for the waterproofing of complex details and localised repairs on new and existing bitumen membranes on inaccessible areas, areas with pedestrian and light vehicular traffic and on living roofs. Eliminating the need for naked flame gas torches, it is the ideal choice for high risk detail and perimeter zones.

Application of Starcoat R in a continuous coat, sealing all board edges, will negate the need for an air and vapour control layer (AVCL).

Supplied in 4 x 4kg or in 20 kg drum. Application is by brush or roller.

Product	Starcoat R	**Coverage rate ****	1.5kg / m^2
Appearance	Black	**Coverage rate/unit/m^2 **** **4x4kg drum** **20kg drum**	 10.67 m^2 13.33 m^2
Application Temperature	5 to 35˚C	**Drying time hour/layer***	3 to 24

*drying time will vary, figures assume 25°C and 50% humidity.
**coverage rates will vary depending on porosity and condition of substrate.
Full details are given in the Axter Starcoat R Brochure, Technical Data Sheet and Safety Data Sheet.

Green Roofs

Hytherm CG Torched can be incorporated into an extensive or intensive living roof. Depending on structural conditions it is suitable for concrete, timber or metal decks. It is resistant to the increased amount of vapour and moisture on roofs with planted areas and because it is inorganic, it is highly resistant to all forms of infestation and vermin. The closed glass cells do not store moisture and provide an effective shield against root penetration. There is no risk of fertilizer damaging the insulation as it is resistant to chemicals.

Environment and Ecology

Hytherm CG Torched is manufactured from minimum specially graded recycled glass (>60%), including scrap vehicle glass and off-cuts from the glazing sector, and natural raw materials (sand, dolomite, lime). It is an inert and non-toxic material and at the end of a building's life the Hytherm CG Torched insulation can be safely incorporated into hardcore or landscaping.

The glass cell structure of the material is naturally produced and is inorganic and free from ozone-depleting propellants, flame retardants or binders. It is without VOC or other volatile substances. Mutagenic or carcinogenic chemicals are not used during production.

HYTHERM CG TORCHED – Standard Thicknesses & Characteristics

Length x width (mm)	1200 x 600						
Thickness (mm)	50	60	80	90	100	110	120
(R_D) - m²K/W	1.35	1.65	2.20	2.50	2.75	3.05	3.30
Units	5	4	3	3	3	2	2
m²	3.60	2.88	2.16	2.16	2.16	1.44	1.44

Length x width (mm)	1200 x 600			
Thickness (mm)	140	150	160	180
(R_D) - m²K/W	3.85	4.15	4.40	5.00
Units	2	2	2	14*
m²	1.44	1.44	4.44	10.08

Other dimensions and thicknesses are available on request
*No single package but 14 boards on a pallet

HYTHERM CG TORCHED – Product Characteristics

Product characteristics to EN 13167	Measure unit	Value	Standard
Reaction to fire		Euroclass E Core material complies with Euroclass A1, non combustible, no toxic fumes	EN 13501-1
Density (±15%)	kg/m^3	100	EN 1602
Thickness ± 2mm	mm	from 50 to 180mm	EN 823
Length ± 5mm	mm	1200	EN 822
Width ± 2 mm	mm	600	EN 822
Thermal Conductivity	W/m·K	$\lambda D \leq 0.036$	EN ISO 10456
Point load	mm	$PL \leq 1.5$	EN 12430
Compressive strength	kPa	$CS \geq 500$	EN 826 Annex A
Bending strength	kPa	$BS \geq 450$	EN 12089
Tensile strength	kPa	$TR \geq 100$	EN1607

HYTHERM CG TORCHED – Product Characteristics

Product characteristics to EN 13167	Measure unit	Value	Standard
Service temperature limits	°C	-265 to +430	
Water vapour resistance	μ	∞	EN ISO 10456
Hygroscopicity		zero	
Capillarity		zero	
Melting point	°C	>1000	cf DIN 4102-7
Thermal expansion coefficient	K^{-1}	9 x 10^{-6}	EN 13471
Specific Heat	J/(kg.K)	1000	EN ISO 10456

Environmental Product Declaration: EPD-PCE-20150042-IBA1-DE (ISO 14025 and EN 15804)

Technical Guidelines

Application

Application of Hytherm CG Torched should preferably take place when the ambient air temperature and temperature of the deck/roof slab are above 5°C.

All expansion and movement joints should be continued through the structure.

Decks

Metal

Thickness	Minimum 0.7mm
Trough width	Maximum 60% of total surface
Minimum insulation thickness	in function of the trough width (l1)
	0mm < L1 ≤ 80mm = **thickness 50mm** (minimum)
	80mm < L1 ≤ 110mm = **thickness 60mm**
	110mm < L1 ≤ 140mm = **thickness 70mm**
	140mm < L1 ≤ 180mm = **thickness 80mm**
Maximum deflection	**1/240** of the span if the height of the corrugations is less than 90mm
	1/300 of the span if the height of the corrugations is equal to or more than 90mm

Metal sheets to be fastened following manufacturer's guidelines.

On top of the galvanized metal sheet a spirit-based primer (cutback) coating should be applied (consumption +/- 150gm/m^2). On pre-coated sheets it is not necessary to apply a primer.

Continuous supports

The deck must be clean, dry and free of any irregularities. Irregularities of the deck must not exceed 3mm over 600mm or 5mm over 2m.

In the case of a concrete roof slab and if required an appropriate levelling screed shall be applied.

If composed of pre-cast concrete beans, irregularities must not exceed 3mm between each section.

*Information on HYTHERM CG Adhered and Tapered insulation is available in separate Axter Product Data Sheets. Please contact Axter for further details or technical assistance.