TOILONTHERMOTECH®

Thermal CrossLinked Closed Cell FR CLASS O

THERMOTECH WARRANTY UP TO 15** YEARS

*TERM AND CONDITIONS APPLY

XLPE

CHEMICALLY CROSSLINKED
CLOSED CELL FOAM FR CLASS O

CROSS-LINKED FOAM

HVAC & DUCT INSULATION

ROOF & CLADDING INSULATION

thermo.co.id

thermotech indonesia

SAVE ENERGY & COOLING COST
With CrossLinked Foam

THERMAL CONDUCTIVITY
ASTM C518 - 2021
K VALUE
0.0316 W/m.K | 0.0272 (Kcal/mhK)

TOILON® THERMAL INSULATION TECHNOLOGY

Exova Firefly Warrington Tested · TÜV PSB Singapore · AWTA Product Testing · Intertek · UL UL94 · TKDN Tingkat Komponen Dalam Negeri · Kementerian Perindustrian Republik Indonesia · MSTA SNI ISO 9001:2015 · SGS ASTM G 21-09 SGS Korea Co.Ltd · ASTM International · AOLAS · ilac-MRA · ISO 14001:2015 Environmental Management System

Building & Constructions Safety Regulation & Standard International (Certification and Testing Report)

Toilon Thermotech® is crosslinked foam technology manufactured, which is polyolefin material is very suitable for insulation used in HVAC & Duct, Roof, Wall, Cladding, Pipe, Raised Floor & Underlayer which provides excellent performance.

Toilon Thermotech® products are guaranteed up to 20 Years certified warranty so that Toilon Thermotech® products are extremely durable and long lasting. Our commitment to maintaining quality and it is proven by conducting ISO 9001.

Toilon Thermotech® product certified with FR Rating Class O (EXOVA & TUV), and ASTM E84-24 with Flame Spread index = 5 & Smoked Development Index = 20 with Compliance of Certificate from UL94, etc. All Certificate recommended for safety building materials.

Toilon Thermotech® crosslinked foam closed cell technology is a product with high innovation with two type Crosslinked Product :
a. IXPE - Physically Crosslinked Foam Closed Cell , produces with electron beam machine for Crosslinking Polimer Progress.
b. XLPE - Chemically CrossLinked Foam Closed Cell , with chemically mixing machine for crosslinking polimer progress.

Proven Reliability & Experience Since 2001 (special quality material control)

Toilon Thermotech® thermal insulation technology has been experienced in foam insulation field since 2001. Toilon Thermotech® is The FIRST & BIGGEST CrossLinked Technology with experience more than 20 years and leading number 1 in local market Indonesia.

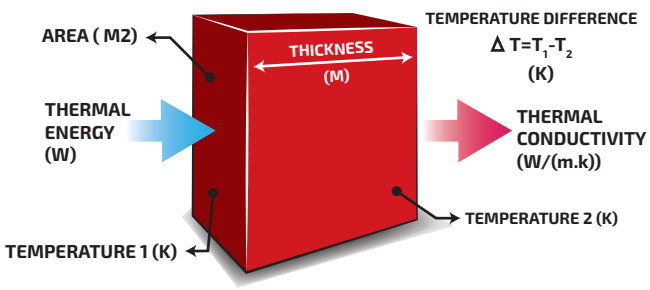
Therefore, we are here in Indonesia to meet all your insulation needs such as: HVAC, roof, wallding, pipe, raised floor, underlay and building insulation, etc. Which provides excellent performance and best quality of production.

Technically Superior

Our distinctive CrossLinked technology produces a smaller and more evenly fine cell structure. Thermal conductivity and vapour permeability, which are the key factors in insulation performance, are directly affected by the cell structure.

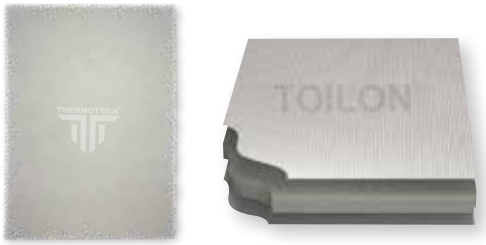
Thermal Conductivity (ASTM C-518)

0.0316 W/m.K
0.0272 (Kcal/mhK)
Mean Temp : 23°C
It is the lowest amount of any flexible insulation material.



Chemically Crosslinked Technology

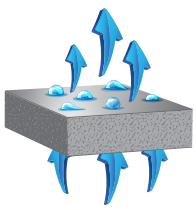
XLPE Chemically Crosslinked Technology :
- Strong & Great Surface with Fine Closed Cell
- High Vapour Permeability Resistance



Foam Oven Expanding Machine
(XLPE-Chemically CrossLinking polymer Process)

Almost Zero Vapour Permeability

Permeability This property guarantees that the thermal conductivity stays relatively constant for up to 15 years which will give a significant contribution to building sustainability and lowering energy cost.



Third Party Certification & Testing

To maintain the quality of products that are produced in house from our factory, we carry out certification testing periodically through a credible and internationally recognized institution :

- *American Standard Testing and Material (ASTM) - USA*
- *British Standards (BS) - United Kingdom*
- *EXOVA Warrington Fire Tested - United Kingdom*
- *Intertek Testing Services - United Kingdom*
- *Australian Wool Testing Authority - Australia*
- *Underwriters Labotories - USA (UL 94)*
- *Technischer Uberwachungs Verein - Germany (TUV - PSB Singapore)*
- *Societe Generale de Surveillance - Switzerland (SGS - Korea)*
- *Korea Laboratory Accreditation Scheme (KOLAS) - Korea*
- *International Laboratory Accreditation Cooperation (ILAC - MRA)*
- *Tingkat Komponen Dalam Negeri (TKDN) - Indonesia*
- *Kementerian Perindustrian - Indonesia*
- *International Organization for Standardization (ISO) - United Kingdom*
- *MSA Certification - SNI ISO 9001:2015 - Indonesia*
- *MSA Certification - SNI ISO 14001:2015 - Indonesia*

International Fire & Smoke Standars for Building Insulation (Duct/Raised Floor/Roof/Cladding)

- British Standards BS 476 (Parts 6 & 7)
- American Standards ASTM E84
- AWTA Product Testing Method : AS/NZS 1530.3-1999
- *Underwriters Labotories - USA* (UL 94)

Quality Materials

To maintain the stability of the quality of our products, we conduct routine Product Testing compiled with *Underwriters Labotories - USA (UL 94)* for raw material and product line audits every 3 months.

Exova Warringtonfire Firefly Warrington Tested
TÜV SÜD PSB Singapore
AWTA Product Testing
Intertek Intertek Testing Service NA INC Elemendorf - USA
UL LLC North America UL94
TKDN TINGKAT KOMPONEN DALAM NEGERI
Kementerian Perindustrian REPUBLIK INDONESIA
MSA SNI ISO 9001:2015
ISO ISO 14001:2015 ENVIRONMENTAL MANAGEMENT SYSTEM
IAF MEMBER OF MULTILATERAL RECOGNITION ARRANGEMENT
SGS ASTM G 21-09 SGS Korea Co.Ltd
ASTM ASTM INTERNATIONAL
KOLAS
ilac-MRA

Flow Production

Raw Material & Compounder Mixing Machine

Progress Master Sheet (Extruder Machine)

Foam Oven Expanding Machine (XLPE - Chemically CrossLinking Polymer Process)

Finishing / Flaming Lamination

Packing Machine

Storage

Product Application

HVAC & Duct Insulation

Insulation from crosslinked Polyolefin foam. It has low thermal conductivity and a closed cell structure and is reinforced with a layer of lamination on the outer surface.

Underlayer Insulation

Placing acoustic or insulation underlay underneath your flooring greatly enhances your living comfort, as it noticeably reduces reflected walking noise.

Roof Insulation

The use of roof insulation Heat Absorbers can reduce energy loss. Maintaining Consistent Stable Room Temperature.

Raised Floor Insulation

Raised Floor is a model and construction method in data center buildings by creating additional floors with a height of several centimeters from the concrete floor or main floor of a building.

Pipe Insulation (ThermoTube)

Insulation has excellent durability & flexibility power. It is used in flexible temperature between -80°C~100°C.

Cladding Insulation

Cladding is the outer layer that protects the core and reflects the light that radiates out back into the core.

Type Of Product

ROOF & CLADDING INSULATION

TOP LAYER
XLPE Foam FR Class 0

BOTTOM LAYER
Aluminum Foil
(ECO / PREMIUM UV)

Single Side Lamination
(AF1 - PF1)

TOP LAYER
Aluminum Foil
(ECO / PREMIUM UV)

MIDDLE LAYER
XLPE Foam FR Class 0

BOTTOM LAYER
Aluminum Foil
(ECO / PREMIUM UV)

Double Side Aluminum
(AF2 - PF2)

HVAC & DUCT INSULATION

TOP LAYER
Aluminum Foil
(ECO / PREMIUM UV)

MIDDLE LAYER
XLPE Foam FR Class 0

MIDDLE LAYER
Adhesive / Glue

BOTTOM LAYER
Glue Coating Paper

Single Side Alum With Glue
(AF1G - PF1G)

TOP LAYER
XLPE Foam FR Class 0

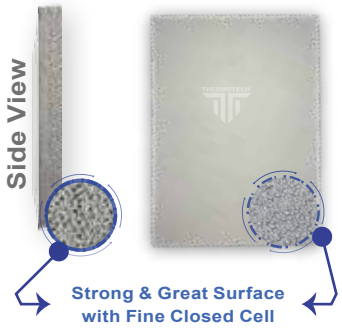
MIDDLE LAYER
Adhesive / Glue

BOTTOM LAYER
Glue Coating Paper

Foam Only With Glue
(FOG)

Type of CrossLinked XLPE Foam

- Chemically CrossLinked Technology
- Thermal Foam Insulation
- The highest Fire Rating Class 0
- Strong & Great Surface with Fine Closed Cell
- High Vapour Permeability Resistance
- Water Resistance Protect
- Lifetime More Than 15 Years** (T&C Applied)



A. Premium Protection for Indoor & Outdoor (Premium UV)

- Total Alum Thickness Material : 70 ~ 80 micron
- Radiant Reflectivity up to 95.7 %
- Emissivity : 0.13 (Low Re-radiation)
- Strong with Anti Tear Aluminum
- Anti Corrosion & Anti UV Protection Aluminum

B. General Protection for Indoor (Eco)

- Total Alum Thickness Material : 50 ~ 60 micron
- Radiant Reflectivity up to 85 %
- Emissivity : 0.06 (Low Re-radiation)
- Strong with Anti Tear Aluminum

Product Accessories

▪ THERMAL FOAM TAPE

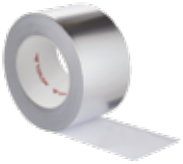
Type Product :
> Foam Only With Glue (FOG)
> Alum Foil With Glue (AF1G)

Size Availability :
> 5 mm x 1 inch x 10 mtr
> 5 mm x 2 inch x 10 mtr

▪ ALUMINUM TAPE (DUCT TAPE)

Size Availability :
> 48 mm x 30 mtr (2 Inch)
> 72 mm x 30 mtr (3 Inch)

▪ METALIZE TAPE



Size Availability :
> 48 mm x 30 mtr (2 Inch)

▪ PLATSTREEP ZINCALUME

Size Availability :
> 30 mtr x 5 cm (0,3 mm TCT)
> 30 mtr x 8 cm (0,3 mm TCT)

▪ GLUE BLACK PREMIUM

Type Product :
Glue Black Premium 220
Size Availability : Uk.10kg / Blek

Thermo Calculator

ThermoTech Support Technology is a simple and accurate software tool for calculating insulation thickness using Overall Thermal Transfer Value (OTTV) and Roof Thermal Transfer Value (RTTV) calculations for green building standards.

Thermo calculator provides solutions with accurate calculations, which can provide the following benefits :

Save Energy Costs
- With proper insulation, heat is not easily lost or absorbed, thus reducing electricity or fuel consumption for heating/cooling.
- Reduces over insulation (insulation that is too thick wasted material costs) and under insulation (insulation that is too thin wasted energy).

Reduced Maintenance Costs
- Avoids condensation on surfaces, which can cause corrosion.
- Reduces equipment wear and tear due to temperature fluctuations.
- Reduces the risk of fire or thermal leakage.

Standards Compliance
- Many industry standards (e.g., SNI, ISO, ASHRAE, Green Building) require certain levels of insulation for energy efficiency. The Thermo Calculator helps ensure designs comply with these standards.

ThermoTech Support Technology

www.thermocalculator.co.id

Project Reference

Panasonic, Cimory, ShinWon, TRI (PT. TOKAI RIKA INDONESIA), Shopee, DANKOS, HYUNDAI, RSUP PERSAHABATAN, PLN, NUSANTARA, DENSO (Member of the TOYOTA Group), CIPUTRA, ultrasakti, bioFarma, NSK, INDOGROSIR, vaksindo, Yummy choice., Bagus Group, mayapada hospital (Experience Better Care), YAYASAN BUDHA TZU CHI INDONESIA, JAMU JAGO (JAGONYA JAMU SEJAK 1918), SUPER INDO, Yasunaga, NIPRO, DE LAXSTON HOTEL, LOGOS LOGISTICS, ABC Heinz, Biznet, Indomaret, AGUNG SEDAYU GROUP, SANOH, AJINOMOTO, ProSTEM (PRODIA STEMCELL INDONESIA), swissôtel Hotels & Resorts, Kino, Siloam Hospitals, smesco, living world, Microsoft, RS Sentra Medika Cibinong, DAIKIN, Nestle, Delfi, BENTOEL GROUP, RUMAH SAKIT MITRA HUSADA TANGERANG, MATTEL, edelweiss hospital, RSUP FATMAWATI, SUNCRN (PT. SUNCHIRIN INDUSTRIES INDONESIA), Ortholite, akebono, UNIVERSITAS DIPONEGORO SEMARANG, ASTON (PRIORITY SIMATUPANG HOTEL & CONFERENCE CENTER), PADMA PIAZZA (EXPLORE THE EXCITEMENT), dharmais, SOLARIA Restaurant, BIZPARK, RUMAH SAKIT Permata Cibubur, AQUA, CITRAGARDEN CITY JAKARTA, INDOMARCO, Unilever, Indofood CBP, ZUCCA CORP., Suryaraya Rubberindo Industries

GEDUNG GWW IPB

INDOFOOD PONTIANAK

WAREHOUSE SPIL CIBITUNG

WAREHOUSE BEKA SUBANG

JAINDO PDIP PURWAKARTA

GEDUNG PERTEMUAN SLEMAN

BIZPARK - PIK 2

SHINWON FACTORY

PT. ULTRA SAKTI

sanoh
PT. SANOH INDONESIA

ROOFING INSULATION

ROOFING INSULATION

ROOFING INSULATION

PT. ARION TECH INDONESIA

ROOFING INSULATION

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abc
HEINZ ABC INDONESIA

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GUDANG KAMPER BAGUS

ROOFING INSULATION

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ROOFING INSULATION

AJI-NO-MOTO
AJINOMOTO

ROOFING INSULATION

ROOFING INSULATION

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PT. VUTEQ INDONESIA
PT. VUTEQ INDONESIA

ROOFING INSULATION

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HUNIAN PEKERJA KONTRUKSI

ROOFING INSULATION

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Cimory
KANDANG SAPI CIMORY

ROOFING INSULATION

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PT FUSION NIAGA BOGA
PT. FUSION NIAGA BOGA

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HVAC & DUCT INSULATION

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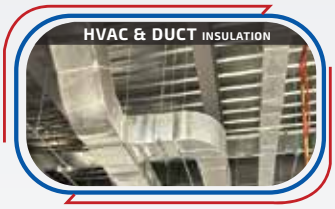
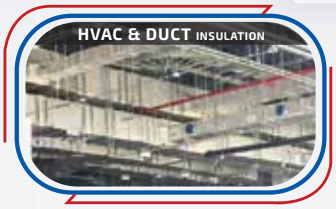
HVAC & DUCT INSULATION

DAEWONG SELATOX


HVAC & DUCT INSULATION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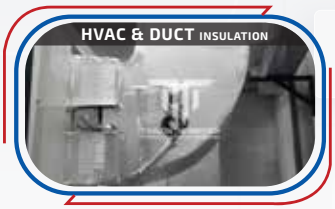
HVAC & DUCT INSULATION

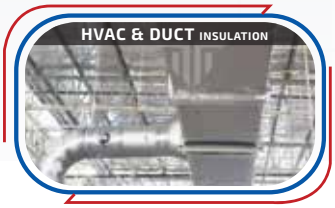
HVAC & DUCT INSULATION


HVAC & DUCT INSULATION

DAIKIN
DAIKIN FACTORY

HVAC & DUCT INSULATION

HVAC & DUCT INSULATION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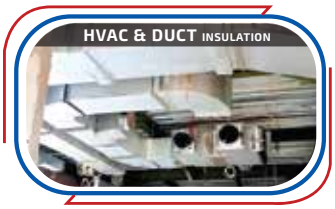
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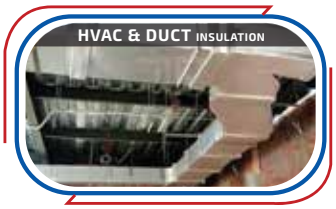
HVAC & DUCT INSULATION

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Delfi
PABRIK CERES BANDUNG

HVAC & DUCT INSULATION

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HVAC & DUCT INSULATION

Kino
KINO SAYUNG DEMAK

HVAC & DUCT INSULATION

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HVAC & DUCT INSULATION

UNILEVER SKIN ZARA

HVAC & DUCT INSULATION

HVAC & DUCT INSULATION

HVAC & DUCT INSULATION

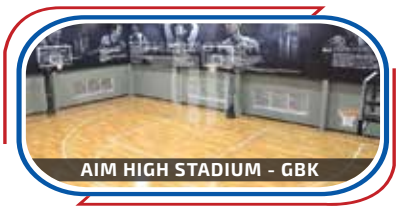
PANASONIC HEALTH CARE

PT. BIO FARMA PERSERO

BENTOEL GROUP

CISSIE SUNTER

KUJANG CIKAMPEK


AIM HIGH STADIUM - GBK

RSUD DEPATI

RSUP FATMAWATI

RSUP PERSAHABATAN

GOLDEN SENSE INTERNATIONAL RESTAURANT

UNDERLAYER INSULATION

UNDERLAYER INSULATION

UNDERLAYER INSULATION

SWISSOTEL IKN

UNDERLAYER INSULATION

UNDERLAYER INSULATION

UNDERLAYER INSULATION

MESJID SYEIKH ZAYED

UNDERLAYER INSULATION

UNDERLAYER INSULATION

UNDERLAYER INSULATION

HOTEL LAXSTON

UNDERLAYER INSULATION

UNDERLAYER INSULATION

UNDERLAYER INSULATION

HOTEL MERCURE TANGERANG CENTRE

UNDERLAYER INSULATION

UNDERLAYER INSULATION

UNDERLAYER INSULATION

MERCURE HOTEL

UNDERLAYER INSULATION

UNDERLAYER INSULATION

UNDERLAYER INSULATION

OAKWOOD

UNDERLAYER INSULATION

UNDERLAYER INSULATION

UNDERLAYER INSULATION

JAKARTA AIRPORT HOTEL

UNDERLAYER INSULATION

UNDERLAYER INSULATION

UNDERLAYER INSULATION

GSG UNIVERSITAS DIPONEGORO

UNDERLAYER INSULATION

UNDERLAYER INSULATION

UNDERLAYER INSULATION

TOILONTHERMOTECH®

Thermal CrossLinked Closed Cell FR CLASS O

Technical Specification

XLPE
CHEMICALLY CROSSLINKED
CLOSED CELL FOAM FR CLASS O

Density CrossLinked Foam (BS EN 1602 : 2013) TUV-SUD Singapore	25 kg/m³ (Standart product - foam only) 62,75 Kg/m³ (Total density foam with alum) 28 to 200 kg/m³ (Available for custom product)
Thermal Conductivity (ASTM C518 : 2021) TUV - SUD Singapore	0.0316 W/m.K 0.0272 (Kcal /mhK) Mean Temp : 23°C
Water Vapour Transmission (ASTM E96 / TUV Singapore)	0.13 g/m².h
Resistance to fungi (ASTM G21 / SGS Korea)	Zero Growth (Result Test : 0)
VOC Emission Rate (ASTM D5116) Korea Conformity Laboratories (KCL)	Low VOC emitting TVOC : 0.036 mg/m².h
TKDN Kementerian Perindustrian Republik Indonesia No.13952/SJ-IND.8/E-TKDN/9/2025	**XLPE** (Chemically CrossLinked Foam FR Class O) 41.50%
Ozone Resistance	Excellent
UV Resistance TUV SUD PSB - SINGAPORE	Excellent **ASTM E903:2020** (Solar Absorptance, Reflectance, & Transmittance) **ASTM G173:2023** (Solar Spectral Irradiances) **ASTM C1371:2015** (Determination Of Emittance Materials) **ISO 4892-3: 2016** (96 hours UV Lamps Test)
World Green Building Council (GBCI)	As a Member of Green Building Council Indonesia
Operating Temperature Range	-80°C ~ 100°C (no adhesive)

SIZE AVAILABILITY

THICKNESS	LENGTH	WIDTH	SQUARE METER
3/4/5/8/10/12	30 m	1.2 m	36 m²/ roll
15/20/25	12 m	1.2 m	14.4 m²/ roll
30/35/40/45/50	2 m	1.2 m	2.4 m²/ sheet
**Custom Size By Request			

ThermoTech Support Technology
to calculate the thickness of required insulation based on learned project environment
www.thermocalculator.co.id

FIRE & SMOKE PERFORMANCE

BS 476 part 6 & 7 (Fire Rating Class) **▪ EXOVA WarringtonFire (UK)** **▪ TUV - PSB - Singapore**	CLASS O
ASTM E84 (INTERTEK Testing Service Elmendorf USA) **COMPLIES (NFPA 255 / UL 723 / UBC 8-1)**	· Flame Spread Index = 5 (<25) · Smoke Developed Index = 20 (<450)

AWTA Product Testing AS/NZS 1530.3-1999
(Fire test on building materials, components and structures)

		Standard Error	Mean	
Ignition Time	:	Nil	Nil	min
Flame propagation time	:	Nil	Nil	sec
Heat release integral	:	Nil	Nil	kJ/m2
Smoke release, log d	:	0.1273	-2.4507	
Optical density,d			0.0043 /metre	

UL94	Horizontal Burn Approved (HF-1)

Aluminum Test Performance

A. Premium UV Aluminum (Outdoor & Indoor)
ASTM E903:2020 (Solar Absorptance, Reflectance, & Transmittance)
ASTM G173:2023 (Solar Spectral Irradiances)
ASTM C1371:2015 (Determination Of Emittance Materials)
ISO 4892-3: 2016 (96 hours UV Lamps Test)
TUV SUD PSB - SINGAPORE

Result :

Visible Light :
> Total Reflectance, Front = 94.2 %
> Diffuse Reflectance, Front = 87.1 %
> Calculated Specular Reflectance, Front = 7.1 %

Solar :
> Total Reflectance, Front = 95.7 %
> Diffuse Reflectance, Front = 89.0 %
> Calculated Specular Reflectance, Front = 6.7 %

Emittance (E) Average :
> Front = 0.13
> Back = 0.13

Result :
Visual appearance after 96 hours exposure to Fluorescent UV Light
Exposure Test :
> No Cracking, Peeling
> Very Slight Yellowing

B. ECO Aluminum (Indoor)
ASTM E903:2020 (Solar Absorptance, Reflectance, & Transmittance)
ASTM G173:2023 (Solar Spectral Irradiances)
ASTM C1371:2015 (Determination Of Emittance Materials)
TUV SUD PSB - SINGAPORE

Result :

Visible Light :
> Total Reflectance, Front = 83.6 %
> Diffuse Reflectance, Front = 77.3 %
> Calculated Specular Reflectance, Front = 6.3 %

Solar :
> Total Reflectance, Front = 85.0 %
> Diffuse Reflectance, Front = 79.0 %
> Calculated Specular Reflectance, Front = 6.0 %

Emittance (E) Average :
> Front = 0.06
> Back = 0.06

PT. Thermo Tech Solutions
member of TOILON

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Tlp. 021 - 5503 222 - 2252 8711 - 2940 5053

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Jawa Timur - 60196

Factory - Toilon ThermoTech
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Desa Talaga Cikupa,
Tangerang - Indonesia

TOILON THERMAL INSULATION TECHNOLOGY
thermo.co.id
thermotech indonesia