



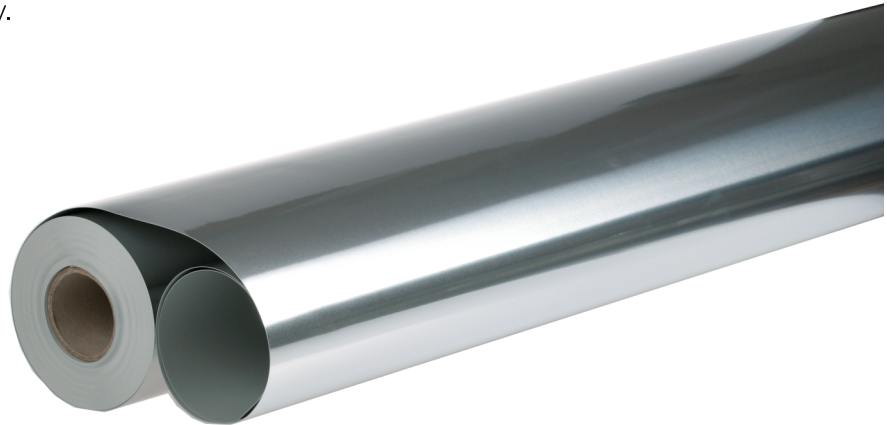
ISOLPAK ALU



Isolpak ALU / ALU WHITE / BLACK UV

The innovation for outdoor applications

Isolpak ALU is an innovative insulation jacketing for outdoor use. Isolpak ALU is the consistent further development of PVC Isolpak the undisputed market leader in Italy among the plastic insulation covering. The meanwhile proven multi-layer construction provides unprecedented features in technology and efficiency.



The key success factors of Isogenopak and Isolpak like the easy installation and machine free handling were combined with new high technological foil and were further developed and improved to an economic alternative to current real metal jacketing systems.

• ALUMINIUM OPTIC

Isolpak ALU combines the technical advantages of plastic and aluminum, but is an inexpensive alternative to real aluminum sheets.

Even strong deformations represent no problem for the film as it returns to the starting position. Dents and bruises are a thing of the past. Especially on project sites where artisans still have to finish other work you can be sure that your Isolpak ALU installations still look great after a few weeks.

• NEW POSSIBILITIES

Due to the highly UV-protective film Isolpak ALU has an advantage also in difficult environments such as on the roof for solar collector pipes, etc.

• DURABILITY

The high chemical resistance combined with low thermal conductivity ensures that the long-term investment pays off.



ISOLPAK ALU WHITE
for outdoor applications

International building projects have different product requirements. TTM completes the system with a white and black version, all project types and colors.



ISOLPAK BLACK UV
for outdoor applications

Innovative



Extreme UV protection



Outdoor application



Great value for money



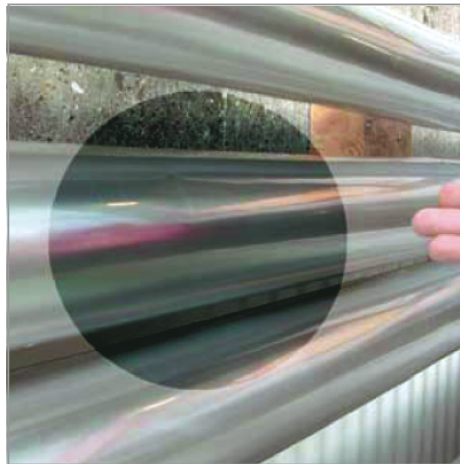
Accessories



Jacketing Isolpak ALU

Perfect appearance coupled with economic benefits

Isolpak ALU differs particularly by its metallic appearance to other PVC sheathings. Especially thanks to the intermediate layer of pure aluminum. A layer of an extremely durable UV-protective film protects the middle layer of aluminum from harmful external influences and corrosion, this guarantees functionality and appearance in the long run.



Dents and indentations are a thing of the past. The memory effect makes the great advantage on the installation, even after months of construction it will be still in top condition. The curling effect completes a perfect, clean and fast installation.

Also, larger pipe diameter can be coated with Isolpak ALU, for those though we recommend thicker versions up to 0.45 mm which then are also a bit stiffer in the construction.

Isolpak ALU - the complete system

Accessories:

- Isolpak ALU 90° and 45° elbows [S, W, 3S]
- T-sections
- Adhesive tapes [UV-ALU & Butyl]
- Nails and PVC staples



- Innovative
- Extreme UV protection
- Outdoor application
- Great value for money
- Accessories

Jacketing Isolpak ALU

Unbeatable advantages, low material cost, ease of Material preparation and fast installation

Costs and resources are becoming increasingly expensive, Isolpak ALU is more favorable and less volatile than metals and metal sheets and can be simply fastened with rivets and special UV-protection tapes.



A sign for the environment, hygiene and safety

✓ Isolpak ALU does not use any heavy metals

✓ Free of ozone-depleting CFC and HCFC compounds

✓ The material is almost [$<0.5\%$] completely free of plasticizers

✓ Free of silicones

✓ Isolpak ALU can be used without any restriction in food processing plants

Large fluctuations in the metals prices have always resulted to uncertainty when calculating the project prices. Different thicknesses need to be stored and are then on stock. Not so with Isolpak ALU, one or maximum two thicknesses are enough for almost all standard pipe diameters. A supply chain optimum can be guaranteed.

For the application it does not require expensive equipment and trained staff. A matching cutting table and the necessary tools and you can start immediately.

The easy and quick processing of Isolpak ALU allows daily a high meter output. The standard rolls of 1000mm x 25m only weigh about 12.5 kg and can be easily carried anywhere and cut at the sight.

During the processing of Isolpak ALU, only little waste is produced, the portions of the material can be mostly re-used. A sign for the environment, hygiene and safety.



Innovative



Extreme UV protection



Outdoor application



Great value for money



Accessories

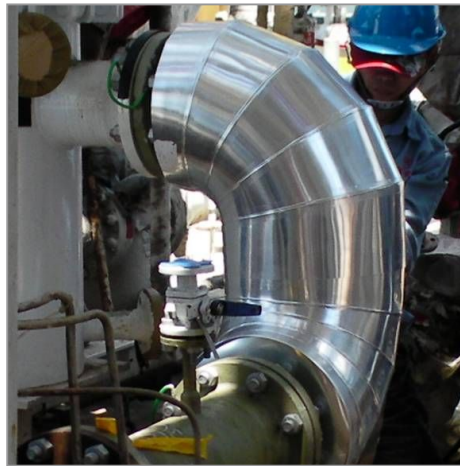
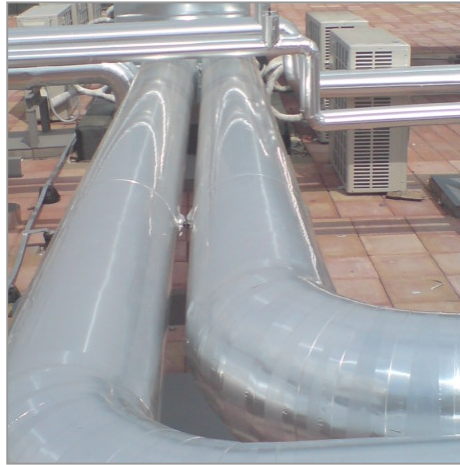


Description	Value	Unit	Test method
Standard thicknesses	200, 230, 280, 340, 450	mm	
Tensile impact strength	> 285	N/15mm	EN ISO 527-3
Elongation at break	35	%	EN ISO 527-3
Puncture resistance 3,0mm	110	N	prEN 14 477
Fire class	B1	on request	DIN 4102
Impact strength	≥ 400	kJ/m ²	ISO 8256
Tensile strength	> 35	N/mm ²	ISO 527
Sd-Value	ca. 1600		
LOI (Limiting Oxygen Index)	35	% O ₂	ASTM D 2863-77

Jacketing Isolpak ALU

References all over the world

The ISOLPAK ALU system is now almost 15 years on the market since it's development. Millions of square meter successfully installed in every part of this world.



-  Innovative
-  Extreme UV protection
-  Outdoor application
-  Great value for money
-  Accessories

Isolpak ALU / ALU WHITE / BLACK UV

The innovation for outdoor applications

Certifications

TTM tested since more than 10 years the ISOLPAK ALU systems versus different national fire regulations with very positive outcome.

FIRE RATING EN 13501

EN ISO 13501-1: B S₂ D₀

efectis | Electis Nederland 2015 | Electis Belgium 2015 | August 2015 | TTM srl

CLASSIFICATION

3.4 CLASSIFICATION CRITERIA

Fire classification of construction products and building elements
Linear pipe thermal insulation products

Classification criteria	Class	B	C	D
EN ISO 11925-2 Exposure = 30 s		F ₁ ≤ 150 mm within 60 s Ignition of the paper in EN ISO 11925-2 results in a d2 classification.		
EN 13823		FIGRA _{ALU} ≤ 270 W/s LFS = edge of specimen THR _{ALU} ≤ 7.5 MJ	FIGRA _{ALU} ≤ 460 W/s LFS = edge of specimen THR _{ALU} ≤ 15 MJ	FIGRA _{ALU} ≤ 2100 W/s LFS = edge of specimen THR _{ALU} ≤ 100 MJ
Additional classification				
Smoke production	s1 = SMOGRA ≤ 105 m ² /s ² and TSP _{ALU} ≤ 250 m ³ ; s2 = SMOGRA ≤ 580 m ² /s ² and TSP _{ALU} ≤ 1600 m ³ ; s3 = not s1 or s2.			
Flaming	d0 = no flaming droplets/ particles in EN 13823 within 600 s;			
Droplets/particles	d1 = no flaming droplets/ particles persisting longer than 10 s in EN 13823 within 600 s; d2 = not d0 or d1.			

4. CLASSIFICATION AND FIELD OF APPLICATION

4.1 REFERENCE OF CLASSIFICATION
This classification has been carried out in accordance with clause 13 of EN 13501-1:2007+A1:2009.

4.2 CLASSIFICATION
The product, ISOLPAK ALU, applied onto Rockwool pipe insulation PROROX P5 960, in relation to its reaction to fire behaviour is classified:
B_{s2}

The additional classification in relation to smoke production is:
s2

The additional classification in relation to flaming droplets / particles is:
d0

Reaction to fire classification: B_{s2} - s2, d0

FIRE RATING ASTM E 84

ASTM 85_5 / 85

ASTM E 84 Testing of "Isolpak ALU Series" | Page 4 of 4

For: TTM GmbH | Report No. 12-002-872(A)

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FLAME SPREAD INDEX

Flame Spread in Feet vs Time in Seconds. The graph shows a sharp increase in flame spread starting around 120 seconds, reaching approximately 18 feet by 300 seconds. The sample (blue line) shows a much lower and more stable flame spread index compared to the Red Oak (Red line).

SMOKE DEVELOPED INDEX

% Light Absorption vs Time in Seconds. The graph shows a peak in smoke developed index around 120 seconds, reaching approximately 40% light absorption. The sample (blue line) shows a much lower and more stable smoke developed index compared to the Red Oak (Red line).

Flame Spread Index (FSI) = 5
Smoke Developed (SD) = 60

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Extreme UV protection



Outdoor application



Great value for money



Accessories



UV OUTDOOR RESISTANCE

ASTM G26 A: >10.000h = > 10 Years

TTM | Ciba

TEST CONDITIONS:

- UV radiation with 0,35 W/m² at 340 nm
- 63 +/- 3°C BLACK PANEL TEMPERATURE (CONTROLLED)
- 42 +/- 4°C DRY BULB TEMPERATURE (CONTROLLED)
- 50 - 60% RELATIVE HUMIDITY DURING DRY PERIOD (CONTROLLED)

TEST CYCLE:

- 102 MINUTES DRY PLUS UV-RADIATION
- 18 MINUTES WATER SPRAY PLUS UV RADIATION

TEST RESULT:

ISOLPAK ALU cover film versus unprotected polyester film of the same thickness

Haze [%] vs Time WOM wet [hours]. The graph shows that the UV-protected Isolpak ALU cover film (blue line) maintains low haze levels (below 10%) even after 15,000 hours of testing. In contrast, the unprotected polyester film (black line) shows a sharp increase in haze, reaching approximately 70% after 5,000 hours, indicating brittle failure.

Outdoor weathering simulation according to ASTM G26 A performed at Ciba SC Plastic Additives Technical Skill Center

THE SELF EXPLANATORY TEST RESULT SHOWS THAT THE UV-PROTECTED ISOLPAK ALU COVER FILM IS LONG TERM RESISTANT AGAINST HAZE EVEN UNDER THE ABOVE SPECIFIED AGGRESSIVE TESTING CONDITIONS.

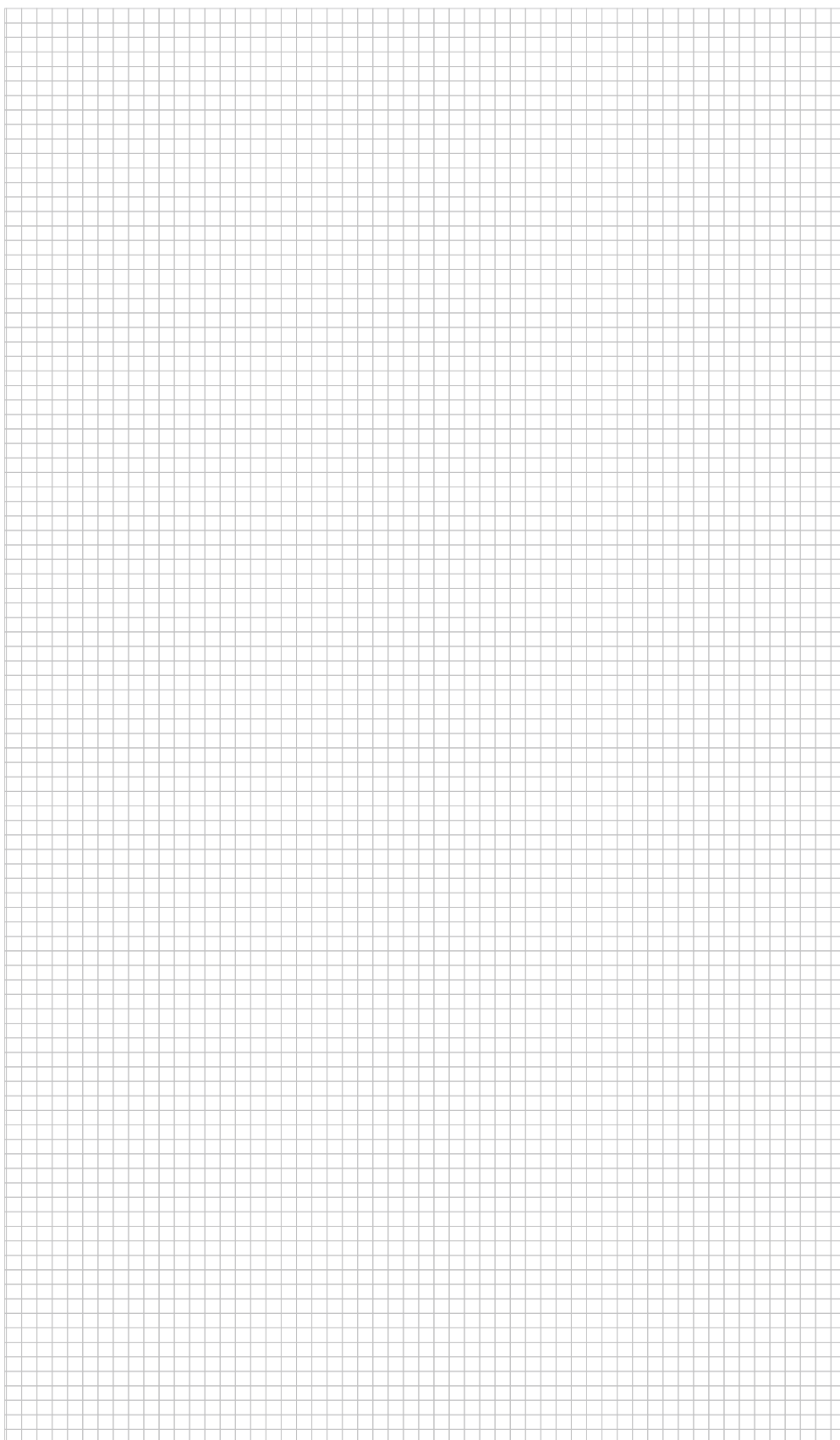
PHYSICAL AND CHEMICAL STABILITY UV protection film

WEATHER PROTECTION COVER FILM PHYSICAL AND CHEMICAL STABILITY

Category	Substance	Resistance
Acids	Acetic acid (all concentrations)	resistant
	50% formic acid	resistant
	10% hydrochloric acid	partially resistant
	30% hydrochloric acid	resistant
	10% and 35% hydrofluoric acid	resistant
	10% nitric acid	not resistant
Aldehydes	Acetaldehyde	resistant
	Formaldehyde	resistant
	Benzyl alcohol	partially resistant
	Cyclohexanol	resistant
Alcohols	Ethyl alcohol	resistant
	Glycerine	resistant
	Glycol	resistant
	Isopropyl alcohol	resistant
Aqueous alkaline solutions	Ammonium hydroxide	not resistant
	Sodium hydroxide	partially resistant
Chlorinated hydrocarbons	Carbon tetrachloride	partially resistant
	Chlorinated biphenyls	resistant
	Chloroform	resistant
	Trichloroethylene	resistant
Esters	Ethyl acetate	resistant
Hydrocarbons	Aliphatic hydrocarbons	resistant
	Benzene	resistant
	Gasoline (petrol)	resistant
	Mineral oils	resistant
Miscellaneous substances	Chlorine	resistant
	Hydrogen peroxide	resistant
	Oxygen	resistant
	Water	resistant
Other organic solutions	Acetone	resistant
	Diethyl ether	resistant
	Nitrobenzene	not resistant
	Phenol	not resistant
Salt solutions	Alkaline carbonates	resistant
	Bichromates	resistant
	Cyanides	resistant
	Fluorides	resistant

At elevated temperatures (approx. > 100°C) and in the presence of water (vapor), the ISOLPAK ALU cover film tends to become brittle as a result of hydrolysis.

TTM srl | Seite 1 | 23.07.2013



Innovative



Extreme UV protection



Normal protection



Recyclable



Outdoor application



Great value for money



Accessories



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