

Quality Documents

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Material data sheet

Material data sheet

Insulating strips of PA 66 GF25,
dry impact resistant

Characteristic	Reference standard	Unit	Samples prepared from extruded insulating strips		Injection-moulded samples
			Dry ⁽¹⁾	Equilibrium moisture content ⁽²⁾	Dry ⁽¹⁾
melting temperature	EN ISO 11357-3	°C	min. 250 ⁽³⁾	min. 250 ⁽³⁾	min. 250 ⁽³⁾
density	EN ISO 1183-1 or -3	g/cm ³	1,3 +/- 0,05	1,3 +/- 0,05	1,3 +/- 0,05
annealing residue (glass fibre content)	EN ISO 1172	%	25 +/- 2,5	25 +/- 2,5	25 +/- 2,5
shore hardness D	EN ISO 868	-	82 +/- 4 ⁽⁴⁾	78 +/- 4 ⁽⁴⁾	84 +/- 2
impact strength	EN ISO 179-1	kJ/m ²	min. 30 or without break ⁽⁵⁾	min. 40 or without break ⁽⁵⁾	min. 35 ⁽⁶⁾
tensile strength	EN ISO 527-2 and -4	N/mm ²	min. 80 ⁽⁷⁾	min. 50 ⁽⁷⁾	min. 110 ⁽⁸⁾
Young's modulus	EN ISO 527-2 and -4	N/mm ²	min. 4500 ⁽⁷⁾	min. 2000 ⁽⁷⁾	min. 6000 ⁽⁸⁾
elongation at break	EN ISO 527-2 and -4	%	min. 3,0 ⁽⁷⁾	min. 7,0 ⁽⁷⁾	min. 3,0 ⁽⁸⁾

- ¹⁾ Sample water content less than 0,2 % by weight
- ²⁾ Fast conditioning acc. to EN ISO 1110 (23°C / 50%)
- ³⁾ Maximum temperature 300°C
- ⁴⁾ Specimen thickness 2mm, unstacked
- ⁵⁾ Specimen Typ 2fU (50 mm x 10 mm x 2mm)
- ⁶⁾ Specimen Typ 1fU (80 mm x 10 mm x 4mm)
- ⁷⁾ Specimen Typ 1BA
- ⁸⁾ Specimen Typ 1A

In case of specific questions we gladly offer you our individual support.

Insulation solutions for windows, doors, and facades

Material data sheet

Insulating strips of Low Lambda PA 66 GF25, dry impact resistant

Characteristic	Reference standard	Unit	Samples prepared from extruded insulating strips	
			Dry ⁽¹⁾	Equilibrium moisture content ⁽²⁾
melting temperature	EN ISO 11357-3	°C	min. 250 ⁽³⁾	min. 250 ⁽³⁾
density	EN ISO 1183-1 or -3	g/cm ³	1,0 +/- 0,1	1,0 +/- 0,1
annealing residue (glass fibre content)	EN ISO 1172	%	25 +/- 2,5	25 +/- 2,5
shore hardness D	EN ISO 868	-	77 +/- 4 ⁽⁴⁾	67 +/- 4 ⁽⁴⁾
impact strength	EN ISO 179-1	kJ/m ²	min. 20 ⁽⁵⁾	min. 30 ⁽⁵⁾
tensile strength	EN ISO 527-2 and -4	N/mm ²	min. 50 ⁽⁶⁾	min. 35 ⁽⁶⁾
Young's modulus	EN ISO 527-2 and -4	N/mm ²	min. 2900 ⁽⁶⁾	min. 1300 ⁽⁶⁾
elongation at break	EN ISO 527-2 and -4	%	min. 3 ⁽⁶⁾	min. 8 ⁽⁶⁾

- 1) Sample water content less than 0,2 % by weight
- 2) Fast conditioning acc. to EN ISO 1110 (23°C / 50 %)
- 3) Maximum temperature 300°C
- 4) Specimen thickness 2mm, unstacked
- 5) Specimen Typ 2fU (50 mm x 10 mm x 2mm)
- 6) Specimen Typ 1BA

In case of specific questions we gladly offer you our individual support.

Insulation solutions for windows, doors, and facades

Material data sheet

High precision strips of PBT GF30

Characteristic	Reference standard	Unit	Samples prepared from extruded insulating strips ⁽¹⁾	Injection-moulded samples ⁽²⁾
melting temperature	EN ISO 11357-3	°C	min. 215	min. 215
density	EN ISO 1183-1 or -3	g/cm ³	1,53 +/- 0,05	1,53 +/- 0,05
annealing residue (glass fibre content)	EN ISO 1172	%	30 +/- 2,5	30 +/- 2,5
shore hardness D	EN ISO 868	-	82 +/- 4 ⁽³⁾	77 +/- 4
impact strength	EN ISO 179-1	kJ/m ²	min. 17 ⁽⁴⁾	min. 30 ⁽⁵⁾
tensile strength	EN ISO 527-2 and -4	MPa	min. 67 ⁽⁶⁾	min. 95 ⁽⁷⁾
Young's modulus	EN ISO 527-2 and -4	MPa	min. 3600 ⁽⁶⁾	min. 6800 ⁽⁷⁾
elongation at break	EN ISO 527-2 and -4	%	min. 1,9 ⁽⁶⁾	min. 2,2 ⁽⁷⁾

¹⁾ Water Content less than 0.2 % (EMC 0.2 % at 23°C/50 % RH)

²⁾ Dry as moulded

³⁾ Specimen thickness 2mm unstacked

⁴⁾ Specimen Type 2fU (50mm x 10mm x 2mm)

⁵⁾ Specimen Type 1fU (80mm x 10mm x 4 mm)

⁶⁾ Specimen Typ 1BA

⁷⁾ Specimen Type 1A

In case of specific questions we gladly offer you our individual support.

Insulation solutions for windows, doors, and facades

Material data sheet

**Insulating strips of PA 66 GF40,
dry impact resistant**

Characteristic	Reference standard	Unit	Samples prepared from extruded insulating strips	
			Dry ⁽¹⁾	Equilibrium moisture content ⁽²⁾
melting temperature	EN ISO 11357-3	°C	min. 250 ⁽³⁾	min. 250 ⁽³⁾
density	EN ISO 1183-1 or -3	g/cm ³	1,45 +/- 0,05	1,45 +/- 0,05
annealing residue (glass fibre content)	EN ISO 1172	%	40 +/- 2,5	40 +/- 2,5
shore hardness D	EN ISO 868	-	83 +/- 4 ⁽⁴⁾	78 +/- 4 ⁽⁴⁾
impact strength	EN ISO 179-1	kJ/m ²	min. 30 or without break ⁽⁵⁾	min. 40 or without break ⁽⁵⁾
tensile strength	EN ISO 527-2 and -4	N/mm ²	min. 100 ⁽⁶⁾	min. 60 ⁽⁶⁾
Young's modulus	EN ISO 527-2 and -4	N/mm ²	min. 5500 ⁽⁶⁾	min. 2500 ⁽⁶⁾
elongation at break	EN ISO 527-2 and -4	%	min. 3 ⁽⁶⁾	min. 7 ⁽⁶⁾

- 1) Sample water content less than 0,2% by weight
- 2) Fast conditioning acc. to EN ISO 1110 (23°C / 50 %)
- 3) Maximum temperature 300°C
- 4) Specimen thickness 2mm, unstacked
- 5) Specimen Typ 2fU (50 mm x 10 mm x 2mm)
- 6) Specimen Typ 1BA

In case of specific questions we gladly offer you our individual support.

Insulation solutions for windows, doors, and facades

Material data sheet



Insulating strips of PA 66 GF25 RE30,
dry impact resistant

Characteristic	Reference standard	Unit	Samples prepared from extruded insulating strips		Injection-moulded samples
			Dry ⁽¹⁾	Equilibrium moisture content ⁽²⁾	Dry ⁽¹⁾
melting temperature	EN ISO 11357-3	°C	min. 250 ⁽³⁾	min. 250 ⁽³⁾	min. 250 ⁽³⁾
density	EN ISO 1183-1 or -3	g/cm ³	1.3 +/- 0.05	1.3 +/- 0.05	1.3 +/- 0.05
annealing residue (glass fibre content)	EN ISO 1172	%	25 +/- 2.5	25 +/- 2.5	25 +/- 2.5
shore hardness D	EN ISO 868	-	82 +/- 4 ⁽⁴⁾	78 +/- 4 ⁽⁴⁾	84 +/- 2
impact strength	EN ISO 179-1	kJ/m ²	min. 30 or without break ⁽⁵⁾	min. 40 or without break ⁽⁵⁾	min. 35 ⁽⁶⁾
tensile strength	EN ISO 527-2 and -4	N/mm ²	min. 80 ⁽⁷⁾	min. 50 ⁽⁷⁾	min. 110 ⁽⁸⁾
Young's modulus	EN ISO 527-2 and -4	N/mm ²	min. 4500 ⁽⁷⁾	min. 2000 ⁽⁷⁾	min. 6000 ⁽⁸⁾
elongation at break	EN ISO 527-2 and -4	%	min. 3 ⁽⁷⁾	min. 7 ⁽⁷⁾	min. 3 ⁽⁸⁾

- ¹⁾ Sample water content less than 0.2% by weight
- ²⁾ Fast conditioning acc. to EN ISO 1110 (23 °C / 50 %)
- ³⁾ Maximum temperature 300 °C
- ⁴⁾ Specimen thickness 2 mm, unstacked
- ⁵⁾ Specimen 2fU (50 mm x 10 mm x 2 mm)
- ⁶⁾ Specimen 1fU (80 mm x 10 mm x 4 mm)
- ⁷⁾ Specimen Type 1BA
- ⁸⁾ Specimen Type 1A

The product contains at least a 30% weight of pre-consumer recycled raw materials according to ISO 14021 standard

In case of specific questions we gladly offer you our individual support.

Insulation solutions for windows, doors, and facades

Material data sheet



Insulating strips of Low Lambda
PA 66 GF25 RE30,
dry impact resistant

Characteristic	Reference standard	Unit	Samples prepared from extruded insulating strips	
			Dry ⁽¹⁾	Equilibrium moisture content ⁽²⁾
melting temperature	EN ISO 11357-3	°C	min. 250 ⁽³⁾	min. 250 ⁽³⁾
density	EN ISO 1183-1 or -3	g/cm ³	1.0 +/- 0.1	1.0 +/- 0.1
annealing residue (glass fibre content)	EN ISO 1172	%	25 +/- 2.5	25 +/- 2.5
shore hardness D	EN ISO 868	-	77 +/- 4 ⁽⁴⁾	67 +/- 4 ⁽⁴⁾
impact strength	EN ISO 179-1	kJ/m ²	min. 20 ⁽⁵⁾	min. 30 ⁽⁵⁾
tensile strength	EN ISO 527-2 and -4	N/mm ²	min. 50 ⁽⁶⁾	min. 35 ⁽⁶⁾
Young's modulus	EN ISO 527-2 and -4	N/mm ²	min. 2900 ⁽⁶⁾	min. 1300 ⁽⁶⁾
elongation at break	EN ISO 527-2 and -4	%	min. 3 ⁽⁶⁾	min. 8 ⁽⁶⁾

- 1) Sample water content less than 0.2% by weight
- 2) Fast conditioning acc. to EN ISO 1110 (23 °C / 50 %)
- 3) Maximum temperature 300 °C
- 4) Specimen thickness 2 mm, unstacked
- 5) Specimen 2fU (50 mm x 10 mm x 2 mm)
- 6) Specimen Type 1BA

The product contains at least a 30% weight of pre-consumer recycled raw materials according to ISO 14021 standard

In case of specific questions we gladly offer you our individual support.

Insulation solutions for windows, doors, and facades

**Safety
information**

Safety information

1. Product

1.1 Product data

Subject No.: 200000-999900

Designation: Insulating strips

2. Composition / Data on constituents

2.1 Chemical properties (individual substance)

PA66

Additional information: In addition to PA66, also contains pigments, fillers, additives, stabilizers and glass fibres.

2.2 Chemical properties (preparation)

Description: Product consists of PA 66, glass-fibre reinforced.

Hazardous constituents: None.

3. Potential hazards

None.

4. First-aid measures

Upon contact with skin: Burns caused by molten material require medical care.

5. Fire-fighting measures

Suitable extinguishing agents:

Water, foam, dry powder and CO₂.

Unsuitable extinguishing agents for reasons of safety: None.

Possibly released at temperatures in excess of 300 °C:

Toxic gases, CO₂, Accompanied by traces of: hydrogen cyanide.

Further information: Formation of further breakdown and oxidation products is dependent on the conditions of the fire. Dispose of fire residues and contaminated fire-fighting water in accordance with regionally applicable official directives.

Special protective equipment: When fighting fires, it is necessary to wear a gas mask with an independent air supply.

6. Measures in case of accidental leakage

No personal or environmental precautionary measures necessary.

7. Handling and storage

Notes on safe handling: No special measures required.

Notes on fire and explosion protection: No special measures required.

Industrial hygiene: No special measures required.

Storage: Store in a dry place to ensure that handling properties are maintained.

8. Exposure limits and personal protective equipment

None.

9. Physical and chemical properties

9.1 Appearance

Shape: Oblong

Colour: Black or other

Odour: Odourless

9.2 Safety data

Melting point: 250 – 265 °C

Flash point: 490 °C

Ignition point: 530 °C

Density PA66 GF25: 1.25 – 1.35 g/ccm

Density Low Lambda PA66 GF25: 0.90 – 1.10 g/ccm

Fire-promoting properties: Incineration or overheating

9.3 Further data

Combustion rate of PA66: 1–2 cm/min

10. Stability and reactivity

Thermal decomposition at > 300 °C.

Hazardous decomposition products: Carbon monoxide, hydrogen cyanide; Depending on fire conditions: Aldehydes, amines, ammonia, ketones, nitriles and traces of nitrogen oxides possible.

Further data: No hazardous reactions observed.

11. Toxicological data

According to our experience and information, the product does not constitute a health hazard when handled and used correctly.

12. Ecological data

No ecotoxic effects; water hazard class (WHC): 0 (generally not a water hazard because water-insoluble, non-toxic solid)

General note: When handled correctly, no environmental risks expected.

13. Notes on disposal

The material in the product can be recycled. The product can be disposed of as household refuse in accordance with local directives or can be fed into a suitable incinerator.

14. Transportation data

Does not constitute a hazard in terms of transportation regulations.

15. Regulations

Not classified by Dangerous Chemicals Ordinance or relevant EC Guidelines.

When handling dust generated during mechanical processing, e.g. grinding, observe the relevant directives/limiting values for fines (lower toxic limit for fines: 6 mg/m³).

16. Other data

The cited data are based on our current knowledge and must not be taken as a warranty of properties.

The recipient of our product assumes responsibility to observe existing laws and provisions.

Polybutylene Terephthalate (PBT)

1. Product

1.1 Product data

Subject No.: 200000-999900

Designation: plastic profile

2. Composition / Data on constituents

2.1 Chemical properties (individual substance) PBT

Additional information: In addition to PBT, also contains pigments, fillers, additives, stabilisers and glass fibres.

2.2 Chemical properties (preparation)

Description: Product consists of PBT, glass-fibre reinforced.

Hazardous constituents:: None

3. Potential hazards:

None

4. First-aid measures

Upon contact with skin: Burns caused by molten material require medical care.

5. Fire-fighting measures

Suitable extinguishing agents:

Water spray, foam, dry powder and CO₂.

Unsuitable extinguishing agents for reasons of safety:

Full water jet

Possibly released at temperatures in excess of 290 °C:

Toxic gases, CO₂, Accompanied by traces of: hydrogen cyanide

Besides this small amounts of the following substances can appear:

Tetrahydrofuran, carbon monoxide

Special protective equipment for firefighters: Wear a self-contained breathing apparatus and chemical protective clothing.

Additional information: Do not allow fire water to penetrate into surface or ground water. Fire residuals and contaminated extinguishing water must be disposed of in accordance with the regulations of the local authorities.

6. Measures in case of accidental leakage

Personal precautions, protective equipment and emergency procedures:

Provide adequate ventilation. Wear personal protection equipment. Do not breathe dust.

Environmental precautions: Do not allow to penetrate into soil, water-bodies or drains.

Methods and material for containment and cleaning up: Avoid generation of dust. Remove all sources of ignition. Take up mechanically. Collect in closed containers for disposal.

Additional information: Special danger of slipping by leaking/spilling product.

7. Handling and storage

Precautions for safe handling

Advices on safe handling: Provide adequate ventilation, and local exhaust as needed. Do not breathe dust.

In the case of the formation of dust: Withdraw by suction.

Molten material: Avoid contact with the substance.

Precautions against fire and explosion: Take precautionary measures against static discharges. Keep away from sources of ignition. Use grounding equipment. Use explosion-proof equipment and non-sparking tools/utensils. Avoid open flames.

In case of dust formation (fine dust): May form explosible dust-air mixture if dispersed.

Conditions for safe storage, including any incompatibilities

Requirements for storerooms and containers: Store in a well-ventilated place. Keep container tightly closed. Protect against heat /sun rays.

Further details: danger of slipping by leaking/spilling product.

Specific end use(s): No information available.

Storage: Store in a dry place and protect from heat and direct sunlight to ensure that handling properties are maintained.

8. Exposure limits and personal protective equipment

The limit values will not be achieved if the product is processed properly and suitable ventilation is provided.

9. Physical and chemical properties

9.1 Appearance

Shape: Oblong

Colour: Black or other

Odour: Odourless - slightly characteristic (raw material)

9.2 Safety data

Melting point: 220 - 230 °C

Flash point: > 400 °C

Ignition point: > 350 °C

Density PBT GF30: 1.3 - 1.8 g/ccm

Fire-promoting properties: not oxidating

10. Stability and reactivity

Thermal decomposition at > 290 °C

Hazardous decomposition products: carbon monoxide, Tetrahydrofuran, Terephthalic acid, Carbon dioxide, Water

Depending on fire conditions: Smoke, hydrogen cyanide, carbon monoxide and carbon dioxide (CO₂).

Further data: No hazardous reactions observed.

11. Toxicological data

According to our experience and information, the product does not constitute a health hazard when handled and used correctly

12. Ecological data

No ecotoxic effects; water hazard class (WHC): 0 (generally not a water hazard because water-insoluble, non-toxic solid)

General note: When handled correctly, no environmental risks expected.

13. Notes on disposal

The material in the product can be recycled. The product can be disposed of as household refuse in accordance with local directives or can be fed into a suitable incinerator.

14. Transportation data

Does not constitute a hazard in terms of transportation regulations.

15. Regulations

Not classified by Dangerous Chemicals Ordinance or relevant EC Guidelines. When handling dust generated during mechanical processing, e.g. grinding, observe the relevant directives/limiting values for fines.

16. Other data

The cited data are based on our current knowledge and must not be taken as a warranty of properties. The recipient of our product assumes responsibility to observe existing laws and provisions.

Confirmation sheet

Confirmation of fulfilment of REACH regulation

EC No 1907/2006

We hereby confirm that in the production of Technoform Bautec products, none of the defined substances in the REACH regulations EG Nr. 1907/2006 requiring registration and evaluation are used.

Polymers are exempted from registration and evaluation as prescribed by REACH regulation in Title I, Chapter 1, Article 2, Section 9. This definition applies to our products in PA 66 GF25, dry impact resistant; PA 66 GF40, dry impact resistant; Low Lambda PA 66 GF25, dry impact resistant and Recycled PA 66 GF25, dry impact resistant.

Notice

Ongoing amendments concerning the REACH regulations are systematically analysed in our company and their implementation ensured. Further information is recorded in our EC Safety Data Sheet (TBGroup-Do-TB-06). This document is enclosed.

Declaration sheet

Absence of hazardous substances in Technoform materials

We hereby confirm, that Technoform Bautech materials does not intentionally contain any of the additives listed below. This applies to our products in PA 66 GF25, dry impact resistant; PA 66 GF40, dry impact resistant; Recycled PA 66 GF25, dry impact resistant and Low Lambda PA 66 GF25, dry impact resistant.

Living Building Challenge Red List

- Asbestos

- Cadmium

- Chlorinated Polyethylene and Chlorosulfonated Polyethylene

- Chlorofluorocarbons (CFCs)

- Choloroprene (Neoprene)

- Formaldehyde (added)

- Halogenated Flame Retardants (PBDE, TBBPA, HBCD, Deca-BDE, TCPP, TCEP and other retardants with bromine or chlorine)

- Hydrochlorofluorocarbons (HCFCs)

- Lead (added)

- Mercury

- Petrochemical Fertilizers and Pesticides

- Phthalates

- Polyvinyl Chloride (PVC or CPVC)

- Wood treatments containing Creosote, Arsenic or Pentachlorophenol

Google's Materials of Concern

- Anti-microbial chemicals

- Coal ash

- Nanomaterials

U.S. EPA Chemicals of Concern

- Benzidine Dyes

- Bisphenol A (BPA)

- Methylene Diphenyl Diisocyanate (MDI)

- Nonylphenol and Nonylphenol Ethoxylates

- Perfluorinated chemicals (PFCs, including PFOA and Teflon)

- Short chain chlorinated paraffins

- Toluene Diisocyanate (TDI)

The absence of hazardous substances was not determined by Technoform Bautech through specific testing but it is based upon information provided by our raw material suppliers, who do not exclude that some of the substances mentioned above may possible be present as trace impurities.

This statement is only valid for the material mentioned above. We cannot guarantee that your final product does not contain any additives as these may be result of additional processing at your plant, which is not under our control.

The product information presented above is correct to the best of our knowledge today.

Declaration sheet

Absence of hazardous substances in Technoform materials

We hereby confirm, that Technoform Bautech materials does not intentionally contain any of the additives listed below. This applies to our products in PA 66 GF25, dry impact resistant; PA 66 GF40, dry impact resistant; Recycled PA 66 GF25, dry impact resistant and Low Lambda PA 66 GF25, dry impact resistant.

State of the Environment Norway :

List of Priority Substances

Arsenic
Bisphenol A
Brominated flame retardants
Diethylhexylphthalat
Certain surfactants (DTDMAC, DSDMAC, DHTDMAC)
1,2-Dichloroethane (EDC)
Dioxins and furans
Cadmium
Chlorinated alkyl benzenes (CABs)
Chromium
Hexachlorobenzene
Lead
Medium-chain chlorinated paraffins
Mercury
Musk xylenes
Nonylphenol and its ethoxylates

Octylphenol and its ethoxylates
Polycyclic Aromatic Hydrocarbons (PAH)
Pentachlorophenol (PCP)
Polychlorinated biphenyls (PCBs)
PFOA
Short-chain chlorinated paraffins
Siloxane-D4
Siloxane-D5
TCEP (tris (2-chloroethyl) phosphate)
Tetrachloroethene (PER)

State of the Environment Norway: List of Priority Substances (Part 2)

Tributyl tin compounds
Trichlorobenzene
Trichloroethene (TRI)
Triclosan
2,4,6 Tri-tert-butylphenol

The absence of hazardous substances was not determined by Technoform Bautech through specific testing but it is based upon information provided by our raw material suppliers, who do not exclude that some of the substances mentioned above may possible be present as trace impurities.

This statement is only valid for the material mentioned above. We cannot guarantee that your final product does not contain any additives as these may be result of additional processing at your plant, which is not under our control.

The product information presented above is correct to the best of our knowledge today.

Confirmation sheet

Fire classification and calorific value of PA 66 GF25, dry impact resistant

Reaction to fire classification

according to EN 13501-1

We confirm that, unmanufactured material used by Technoform Bautech to produce insulating strips PA 66 GF25, dry impact resistant conforms to the requirements of "reaction to fire class E" according to EN 13501-1.

The test has been carried out with insulating strips with a wall-thickness of 2,1 mm and 1,6 mm in accordance to EN ISO 11925-2.

Confirmation of calorific value

We hereby confirm the calorific value of the raw material PA 66 GF25, dry impact resistant processed by Technoform Bautech:

Hi = 23 MJ/kg

Reference standard DIN 51900

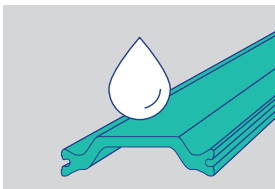
Handling instructions

Handling instructions

Storage of polyamide-based insulating strips

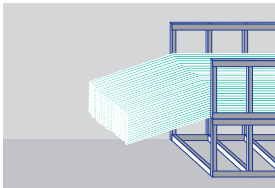
Insulating strips made of polyamide are initially dry but absorb moisture from the environment in the course of time after manufacture. The rate and level of moisture absorption depend on the following factors:

- Ambient humidity
- Ambient temperature
- Storage period

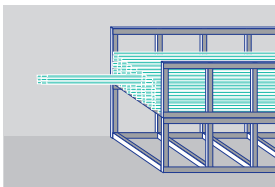


The problem

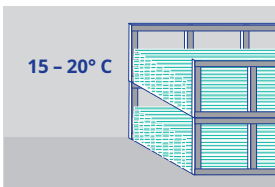
In summer, when the temperature and relative humidity in warehouses are higher than usual, the insulating strips absorb more moisture than in the remaining seasons, even when stored properly for brief periods. During storage under dry conditions, the equilibrium moisture content is lower, approx. 2%. During extended storage periods, the strips change shape according to storage conditions.



The longer the storage period, the greater the possibility of the sag becoming permanent. If the strips are stacked on pallets which are shorter than the strip length (e.g. 6.500 mm strips on 6.000 mm pallets), they sag at the ends. This applies to strips stored in pallets where there is no floor. The strips shouldn't overlap the end of the supports.



A twisting of the strips, which can occur, for example, when individual bundles are removed from a pallet, can also become permanent if the strips are not straightened.



The correct storage

In order to avoid bending or twisting of the strips, take note of the following factors:

- Store the strips so that the degree of sag is minimized
- Make sure to support protruding sections
- Brief storage periods
- Store covered with an ideal room temperature range of 15 – 20 °C

Handling instructions

Coating of aluminum with polyamide-based thermal break profiles

Aluminum with polyamide-based thermal break profiles are generally coated as follows:

1. Conventional cleaning and/or pre-treatment baths

2. Drying of profiles

(e.g. blowing-out or drainage using compressed air)

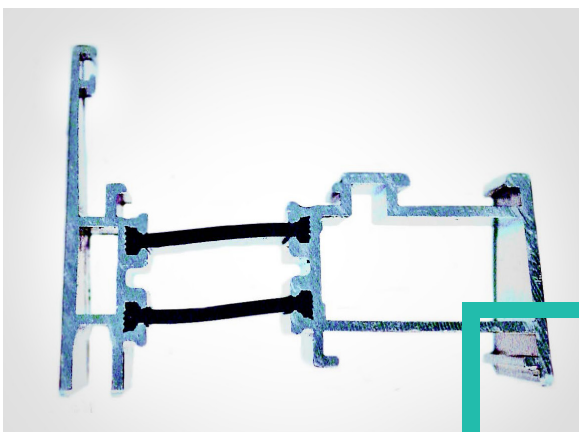
It must be ensured that no residues from the bath are present on the profiles, in the cavities or gaps. Such moisture can lead to the following problems: Formation of blisters or even rupture of insulating strips as a result of oven temperature.

3. Suspending profiles for coating

In order to avoid excessive bending in the horizontal coating process the profile might have to be supported if either the weight of the assembled profile is too high or if the geometry-dependent expansions are too different. In order to eliminate lob-sidedness in the vertical coating process it is important to hang the assembled profile from the aluminum part / parts (heavier part) so that it will hang as vertically as possible.

4. Coating the profiles in the oven

The object temperature of 180 °C – 200 °C and the dwell time of approx. 20 min. must not be exceeded. If this temperature or time is exceeded, the stability of the insulating strips may suffer. There is the risk of the profiles dis-aligning and moving out of parallel as well as a considerable loss of strength in the connection between the two aluminium sections.



Possible dis-aligning of an aluminum with polyamide-based thermal break profile

Handling instructions

Assembling of polyamide-based insulating strips in aluminum profiles

The insulating strips are usually assembled as follows:

1. Room temperature

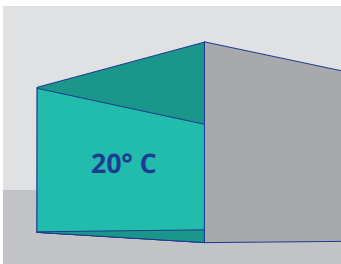
Assembly should be performed in a production hall at room temperature under standard climatic conditions. Before assembly, ensure that the insulating strips have also attained room temperature (refer also to handling instructions on "Storage").

2. Knurling

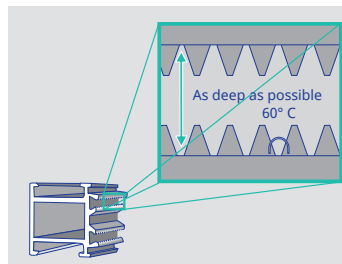
As the degree of knurling of aluminum profiles subsequently influences the shearing strength of the assembled profile, the knurling edges should be as pronounced and sharp as possible. It is essential to ensure that the insulating strips can still be inserted into the groove after knurling (also in the case of painted aluminum profiles). When knurling painted aluminum profiles, take into consideration that the paint layer may cause the opening of the groove to be smaller.

3. Assembling

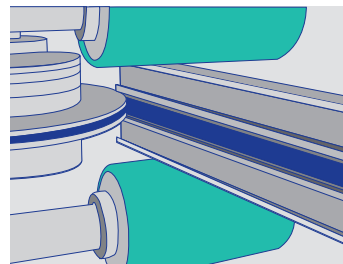
The rolling-in machine must be adjusted for the geometry involved. Parallel guidance of the aluminum profiles should be ensured, if necessary by using supporting rollers. The hammer must penetrate the head of the insulating strip.



1. Ideal room temperature



2. Close-up view of a knurling



3. Assembling process

Handling instructions

Blistering and foaming of polyamide-based insulating strips

Problem statement:

Polyamide is a hydrophilic thermoplastic which absorbs moisture from the environment in the course of time. The rate and degree of moisture-absorption is dependent on the ambient temperature and ambient humidity.

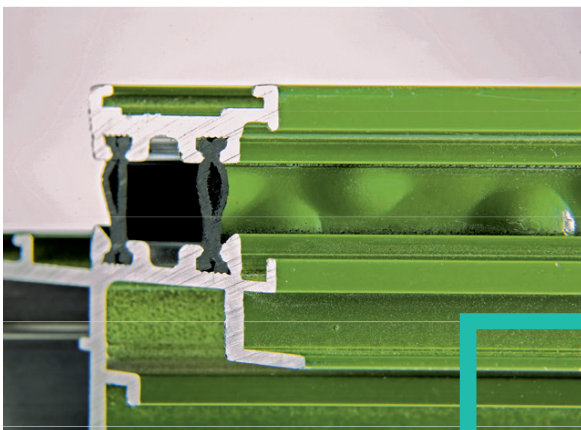
If a polyamide-based insulating strip is subjected to extreme temperatures after having absorbed moisture, this moisture is converted into the vapour phase. This change of state is accompanied by an increase in volume, which can result in blistering or foaming of the insulating strip.

This is dependent on the combined action of two parameters (temperature and moisture content):

Our experience has shown that “conventional” moisture contents resulting from absorption from air during storage of strips/assembled profiles allow object temperatures of 180 °C to 200 °C and dwell times of approx. 20 minutes during the baking of powder coatings.

To prevent blistering and foaming of polyamide-based insulating strips, please ensure the following:

- dry storage of insulating strips and of untreated assembled profiles (rainwater, condensation etc. which has been collected on the insulating strips will be absorbed by the strips thereby increasing the normal storage moisture level.)
- thorough drainage of assembled profiles following pre-treatment and anodization (residual water is absorbed more rapidly by the insulating strip during baking as a result of the oven temperatures and thus increases the normal storage moisture level.)
- uniform temperature in drying and baking ovens (depending on oven type and location of temperature sensor, the temperature of the injected air can significantly exceed the selected oven temperature. Please observe the appropriate object temperature for the various shell weights.)



Blistering/Foaming on the insulating strips