

MiTRAS MATERIALS
...THE BLUE SOLUTION

THERMODET®

Plastic Sheets



Extruded quality
for your
challenging form

THERMODET®

The brand for extruded sheets of MITRAS MATERIALS

The company, situated in Weiden in the Eastern Bavarian Upper Palatinate, is today one of the leading sheet extrusion companies in Europe. The customer-focused company is technically, economically, strategically and organizationally positioned in a flexible and efficient way. It disposes of dedicated employees and an industry-experienced, continuous management with an excellent reputation on the market.

THERMODET®

Extrusion lines on the highest level of technology and decades of experience in the product development and application technology ensure that our customers obtain intelligent solutions for technically challenging applications.

The triumphal procession of plastic began in the 1950s and MITRAS MATERIALS was present almost from the first hour on: The first THERMODET® sheets were extruded in 1957 under the roof of DETAG (later FLACHGLAS AG). In 1989 MITRAS Kunststoffe GmbH was founded, and one division became today's MITRAS MATERIALS GmbH and was registered as an independent company in 1998.

MITRAS MATERIALS' quality brand THERMODET® stands for individually developed and extruded thermo-plastic sheets which are exclusively manufactured with first-class brand raw materials.

The wide range of the co-extruded mono-layer and multi-layer sheets are available with super-matt to high-gloss surfaces, with smooth, embossed or soft-touch surfaces and many standard and customized colours.

With our sheets our customers manufacture technically challenging plastic moulded parts in the thermoforming process respectively in the vacuum forming process.

THERMODET® Applications

The application possibilities of THERMODET® sheets are varied. These include besides interior and exterior coverings for the automotive industry, utility vehicles and caravans also parts for the building and leisure industry, the stock and transportation logistics and lots of other industries.



MITRAS MATERIALS

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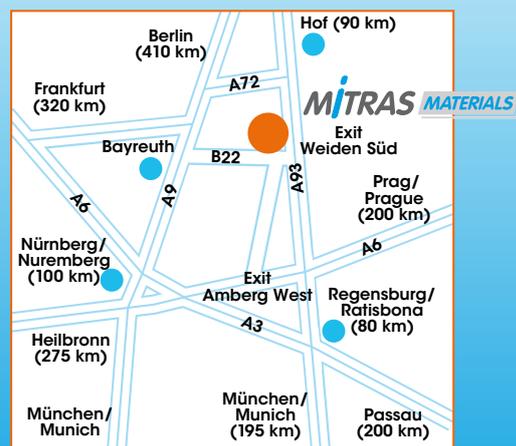
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THERMODET®

ABS Plastic Sheets

Composite sheets of ABS (acrylonitrile-butadiene-styrene) are characterized by a good and even respectively excellent impact resistance also at low temperatures. Sheets of ABS dispose of a good heat and chemical resistance, excellent thermoforming properties and varied application possibilities.

A.1 THERMODET®

ABS impact resistant

Sheets of impact resistant ABS with a semi-gloss surface.

Examples for application:

case covers, suitcases, heating covers, transportation trays

A.2 THERMODET®

ABS high impact resistant

Sheets of high impact resistant ABS with semi-gloss surface.

Examples for application:

Tuning parts, tool boxes, instrument boxes, automobile parts

A.3 THERMODET®

ABS matt

Sheets of impact resistant or high impact resistant ABS with a matt surface and a variable gloss level (semi-matt to super-matt).

Examples for application:

automotive interior parts, tuning parts, case covers



THERMODET®

ABS Plastic Sheets



A.4 THERMODET®

ABS fire retardant

Sheets of impact resistant or high impact resistant ABS-compound with specific fire protection equipment are available with a semi-gloss to matt surface (e.g. UL94-V0).

Examples for application:

lighting covers, electronic sector

A.5 THERMODET®

ABS special

Sheets of impact resistant or high impact resistant ABS are additionally available with an increased heat resistance, UV-stabilization or corona treatment.

Examples for application:

automotive parts, printing sector

A.6 THERMODET®

ABS EL (conductive)

Sheets of impact resistant conductive ABS-compound with a conductive surface.

Examples for application:

installation and transportation pallets

A.7 THERMODET®

ABS recycling

Sheets of ABS are recyclable and can be re-used as recycling or processing material in different ways.

Examples for application:

installation and transportation pallets

Material	Surface	Thickness (standard)	Width (standard)
A.1 THERMODET® ABS impact resistant	semi-gloss	smooth/embossed	1.50 – 12.00 mm (sheet) up to 2500 mm
A.2 THERMODET® ABS high-impact resistant	semi-gloss	smooth/embossed	1.50 – 12.00 mm (sheet) up to 2500 mm
A.3 THERMODET® ABS matt	semi-matt to super-matt	smooth/embossed	1.50 – 12.00 mm (sheet) up to 2500 mm
A.4 THERMODET® ABS fire retardant	semi-gloss to matt	smooth/embossed	3.00 – 8.00 mm (sheet) up to 1250 mm
A.5 THERMODET® ABS special	semi-gloss to matt	smooth/embossed	1.50 – 12.00 mm (sheet) up to 2500 mm
A.6 THERMODET® ABS EL (conductive)	semi-gloss	smooth/embossed	1.50 – 12.00 mm (sheet) up to 2500 mm
A.7 THERMODET® ABS recycling	semi-gloss	smooth/embossed	1.50 – 12.00 mm (sheet) up to 1250 mm

More delivery forms, colours or technical data sheets on request.

Specifications based on technical development, subject to modifications.

THERMODET®

ASA and ASA/ABS Plastic Sheets

Composite sheets of ASA (acrylonitrile-styrene-acrylic ester) and ASA/ABS are characterized by an excellent weathering and impact resistance also at low temperatures. Furthermore sheets of ASA and ASA/ABS have a good chemical resistance and excellent thermoforming properties.

B.1 THERMODET®

ASA semi-matt

Sheets of impact resistant ASA with a semi-matt surface and an excellent weathering and UV resistance.

Examples for application:
air conditioning covers

B.2 THERMODET®

ASA semi-gloss

Sheets of high impact resistant ASA with a semi-gloss surface and an excellent weathering and UV resistance.

Examples for application:
cool transport covers

B.3 THERMODET®

ASA/ABS semi-matt

Sheets of impact resistant or high impact resistant ABS with a semi-matt ASA top layer and therefore an excellent weathering and UV resistance.

Examples for application:
automotive exterior parts, roof tiles, cleaning machines



THERMODET®

ASA and ASA/ABS Plastic Sheets



B.4 THERMODET®

ASA/ABS semi-gloss

Sheets of impact resistant or high impact resistant ABS with a semi-gloss ASA top layer and therefore a good weathering and UV resistance.

Examples for application:

caravan fronts, roof boxes, swimming pool stairs, garage doors

B.5 THERMODET®

ASA/ABS special

Sheets of impact or high impact resistant ABS with a "new" scratch resistant ASA top layer from matt to glossy.

Furthermore sheets of ASA/ABS are available with an increased heat resistance and corona treatment.

Examples for application:

automotive parts, exterior covering parts

B.6 THERMODET®

ASA- and ASA/ABS recycling

All sheets of ASA and ASA/ABS are recyclable and can be re-used as recycling or processing material in different ways.

Material	Surface	Thickness (standard)	Width (standard)	
B.1 THERMODET® ASA semi-matt	semi-matt	smooth/embossed	1.50 - 12.00 mm (sheet)	up to 2500 mm
B.2 THERMODET® ASA semi-gloss	semi-gloss	smooth/embossed	1.50 - 12.00 mm (sheet)	up to 2500 mm
B.3 THERMODET® ASA/ABS semi-matt	semi-matt	smooth/embossed	1.50 - 12.00 mm (sheet)	up to 2500 mm
B.4 THERMODET® ASA/ABS semi-gloss	semi-gloss	smooth/embossed	1.50 - 12.00 mm (sheet)	up to 2500 mm
B.5 THERMODET® ASA/ABS special	matt to gloss	smooth/embossed	1.50 - 12.00 mm (sheet)	up to 2500 mm
B.6 THERMODET® ASA and ASA/ABS recycling	semi-gloss	smooth/embossed	1.50 - 12.00 mm (sheet)	up to 1250 mm

More delivery forms, colours or technical data sheets on request.

Specifications based on technical development, subject to modifications.

THERMODET®

PMMA/ABS Plastic Sheets "Exterior Use"

Composite sheets of PMMA/ABS (polymethyl-methacrylate/acrylonitrile-butadiene-styrene) offer a multifunctional range of use for different exterior applications. Sheets of PMMA/ABS for the exterior use show an excellent UV and weathering resistance with a high surface quality and dispose of excellent thermoforming properties.

C.1 THERMODET®

PMMA/ABS high-gloss

Sheets of impact resistant or high impact resistant ABS with a top layer of high-gloss PMMA.

Examples for application:

exterior parts of caravans,
exterior parts of utility vehicles,
lawn mower covers

C.2 THERMODET®

PMMA/ABS Premium high-gloss

Sheets of high impact resistant ABS with a special top layer of high-gloss PMMA for brilliant colours and metallic effects.

Examples for application:

roof boxes, caravan exterior parts,
automotive parts



THERMODET®

PMMA/ABS

Plastic Sheets “Exterior Use”



C.3 THERMODET®

PMMA/ABS matt

Sheets of impact resistant or high impact resistant ABS with a top layer of matt PMMA. Several gloss levels are available (semi-matt to super-matt).

Examples for application:

door panels, roof panels, automotive parts

C.4 THERMODET®

PMMA/ABS special

Sheets of PMMA/ABS are also available with an increased heat resistance and corona treatment.

Examples for application:

exterior parts of utility vehicles, automotive parts, door panels

Material	Surface	Thickness (standard)	Width (standard)	
C.1 THERMODET® PMMA/ABS high gloss	high gloss	smooth/embossed	1.50 - 8.00 mm (sheet)	up to 2500 mm
C.2 THERMODET® PMMA/ABS Premium	high gloss	smooth	1.50 - 6.00 mm (sheet)	up to 2000 mm
C.3 THERMODET® PMMA/ABS matt	semi-matt to super-matt	smooth/embossed	1.50 - 8.00 mm (sheet)	up to 2500 mm
C.4 THERMODET® PMMA/ABS special	high glossy to super-matt	smooth/embossed	1.50 - 8.00 mm (sheet)	up to 2500 mm

More delivery forms, colours or technical data sheets on request.

Specifications based on technical development, subject to modifications.

THERMODET®

PMMA/ABS Plastic Sheets “Interior Use”

Composite sheets of PMMA/ABS (polymethyl-methacrylate/acrylonitrile-butadiene-styrene) offer a multifunctional range of use for different interior applications. Glossy or matt sheets of PMMA/ABS for the interior use meet the high demands concerning surface feel and scratch resistance and dispose of excellent thermoforming properties.

D.1 THERMODET®

PMMA/ABS high gloss

Sheets of impact resistant or high impact resistant ABS with a top layer of high gloss PMMA.

Examples for application:

displays, food shells, interior panels for ambulance vehicles, top layers of furniture

D.2 THERMODET®

PMMA/ABS matt

Sheets of impact resistant or high impact resistant ABS with a top layer of matt PMMA. Several gloss levels are available (semi-matt to super-matt).

Examples for application:

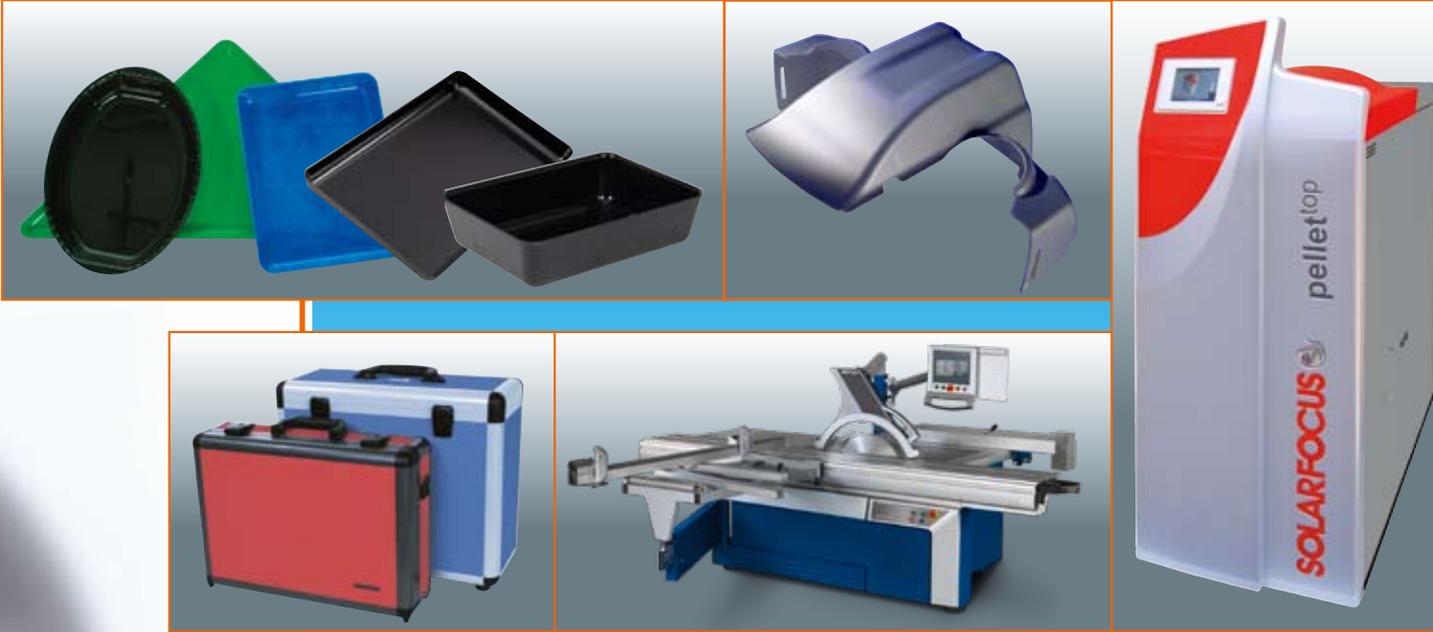
suitcases, toys, machine covers



THERMODET®

PMMA/ABS

Plastic Sheets “Interior Use”



D.3 THERMODET®

PMMA/ABS special

Sheets of PMMA/ABS are also available for the interior use with an increased heat resistance and corona treatment.

Sheets of PMMA/ABS with optimized scratch resistance, stiffness or stress cracking resistance are available on request.

Examples for application:

covers of gambling machines,
washbasins

Material	Surface	Thickness (standard)	Width (standard)	
D.1 THERMODET® PMMA/ABS high gloss	high gloss	smooth/embossed	1.50 - 8.00 mm (sheet)	up to 2500 mm
D.2 THERMODET® PMMA/ABS matt	semi-matt to super-matt	smooth/embossed	1.50 - 8.00 mm (sheet)	up to 2500 mm
D.3 THERMODET® PMMA/ABS special	matt to high gloss	smooth/embossed	1.50 - 8.00 mm (sheet)	up to 2500 mm

More delivery forms, colours or technical data sheets on request.

Specifications based on technical development, subject to modifications.

THERMODET®

TPU/ABS Plastic Sheets

Composite sheets of TPU/ABS (thermoplastic-polyurethane/acrylonitrile-butadiene-styrene) are characterized by an excellent scratch resistance, abrasion resistance and an anti-slipping effect. Sheets of TPU/ABS also show a very comfortable surface (soft-touch-effect) and excellent thermoforming properties.

E.1 THERMODET®

TPU/ABS gloss

Sheets of impact resistant ABS with a glossy TPU top layer which is characterized by an excellent scratch and abrasion resistance.

Examples for application:

Transportation trays, suitcase shells

E.2 THERMODET®

TPU/ABS “double-faced”

Sheets of impact resistant ABS with a glossy top and bottom layer of TPU which is characterized by an excellent scratch and abrasion resistance.

Examples for application:

Intermediate layer of pallets, transportation trays

E.3 THERMODET®

TPU/ABS EL (conductive)

Sheets of impact resistant conductive ABS-compound with a specific conductive TPU top layer which is characterized by an excellent scratch resistance.

Especially also available in the “double-faced” version (both sides TPU EL).



THERMODET®

TPU/ABS Plastic Sheets



Examples for application (TPU/ABS EL):

Packaging units, transportation trays

E.4 THERMODET®

TPU/ABS matt

Sheets of impact resistant ABS with a matt or super-matt TPU top layer which is characterized by an excellent scratch resistance and soft-touch effect.

Examples for application:

Automotive interior parts, caravan interior parts, suitcase shells

E.5 THERMODET®

TPU/ABS "Exterior"

Sheets of impact resistant ABS with a matt, UV resistant TPU top layer which is characterized by an ex-

cellent UV and weather resistance. Sheets of TPU/ABS "exterior" show a good scratch resistance and soft-touch effect.

Examples for application:

Automotive parts, design elements

E.6 THERMODET®

TPU/ABS "regrind"

Sheets of ABS recycling material with a glossy or matt TPU top layer which is characterized by scratch resistant, anti-slipping and soft-touch properties.

Also available in the "double-faced" version (both sides TPU)

Examples for application:

Transportation pallets, transportation trays, covering elements

Material	Surface	Thickness (standard)	Width (standard)
E.1 THERMODET® TPU/ABS gloss	gloss	embossed	2.00 - 10.00 mm (sheet) up to 1250 mm
E.2 THERMODET® TPU/ABS "double-faced"	gloss	double-faced embossed	2.00 - 10.00 mm (sheet) up to 1250 mm
E.3 THERMODET® TPU/ABS EL	semi-gloss	embossed	2.00 - 10.00 mm (sheet) up to 1250 mm
E.4 THERMODET® TPU/ABS matt	matt or super-matt	embossed	2.00 - 10.00 mm (sheet) up to 1250 mm
E.5 THERMODET® TPU/ABS "Exterior"	semi-matt or matt	embossed	2.00 - 10.00 mm (sheet) up to 1250 mm
E.6 THERMODET® TPU/ABS "Reg"	gloss or matt	embossed	2.00 - 10.00 mm (sheet) up to 1250 mm

More delivery forms, colours or technical data sheets on request.

Specifications based on technical development, subject to modifications.

THERMODET®

HIPS & Special Products Plastic Sheets

Composite sheets of high impact resistant polystyrene (HIPS) are characterized by very easy processing properties and are also modifiable in various ways for specific requirements, e.g. HIPS+PE-Blend. On request MITRAS MATERIALS also manufactures special products with specific properties according to customers' requests.

F.1 THERMODET®

HIPS

Sheets of high impact resistant polystyrene are available in different versions e.g. with different gloss levels of the surface, an increased stress cracking resistance, UV-stabilization or corona treatment.

Examples for application:

sports equipment, roof boxes, case covers, displays

F.2 THERMODET®

HIPS+PE-Blend

Sheets of a special compound of high impact polystyrene and polyethylene, with excellent low temperature tenacity and very good resistance to chemicals.

Examples for application:

caravan interior parts, shower trays, suitcase shells, transportations trays

F.3 THERMODET®

TPE/HIPS

Sheets of high impact HIPS with a matt TPE top layer. TPE/HIPS is an economical option to TPU/ABS with an anti-slipping and soft-touch effect. TPE/HIPS disposes of excellent thermoforming and recycling properties.

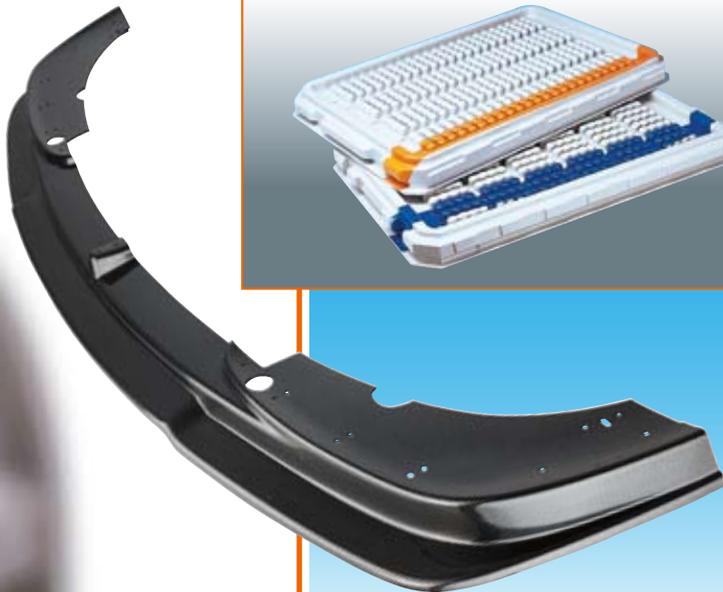
Examples for application:

anti-slipping inserts, covering elements, packaging units



THERMODET®

HIPS & Special Products Plastic Sheets



F.4 THERMODET®

Film lamination

Sheets of ABS, ABS+PC-Blend or HIPS, laminated with matt or glossy decorative films for different applications. Different decorative design films on request, also with embossed surface.

Examples for application:
tuning parts, roof cases, caravan interior parts, door panels

F.6 THERMODET®

ABS+PC-Blend

Sheets of ABS+PC-Blend with different gloss levels of the surface, increased heat resistance and an excellent impact resistance. On request also as co-extrusion with PMMA or ASA.

Examples for application:
utility vehicles, automotive parts

F.5 THERMODET®

marking colour stripe

Sheets of ABS or HIPS which are marked with a colour stripe for a better identification of thermoformed parts of every type.

Examples for application:
vessel technique, transportation trays

Material	Surface	Thickness (standard)	Width (standard)	
F.1 THERMODET® HIPS	semi-gloss to matt	smooth/embossed	1.50 - 10.00 mm (sheet)	up to 1250 mm
F.2 THERMODET® HIPS+PE-Blend	matt	smooth/embossed	1.50 - 10.00 mm (sheet)	up to 1250 mm
F.3 THERMODET® TPE/HIPS	matt	embossed	1.50 - 8.00 mm (sheet)	up to 1250 mm
F.4 THERMODET® Film lamination	gloss to matt	smooth/embossed	1.50 - 5.00 mm (sheet)	up to 1100 mm
F.5 THERMODET® Marking colour stripe	gloss to matt	smooth/embossed	2.00 - 10.00 mm (sheet)*	up to 1250 mm
F.6 THERMODET® ABS+PC-Blend	semi-gloss to matt	smooth/embossed	on request	on request

More delivery forms, colours or tech. data sheets on request. Specifications based on tech. development, subject to modifications

* width of colour stripe: 50 mm

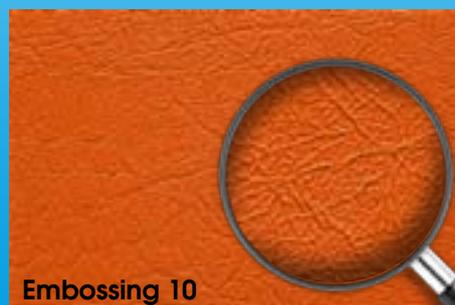
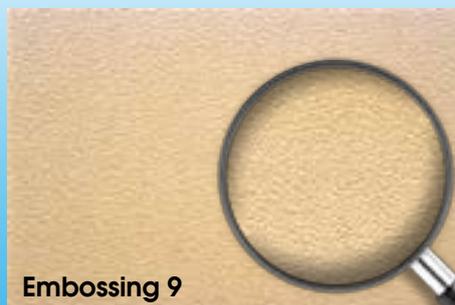
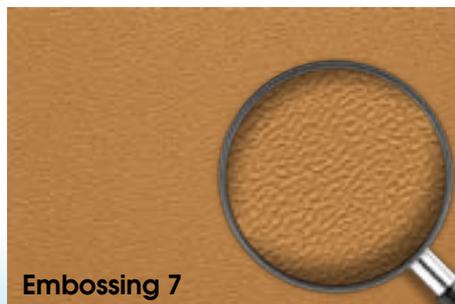
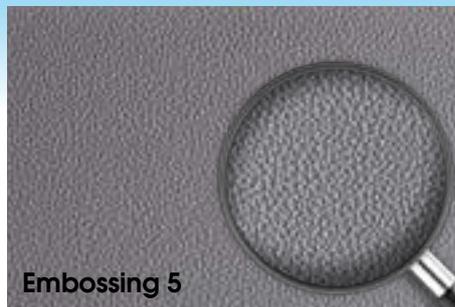
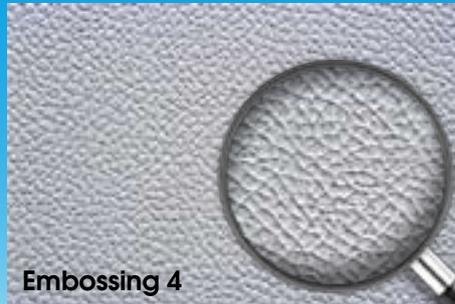
THERMODET® Surfaces of the Plastic Sheets

In addition to smooth surfaces our THERMODET® composite sheets are also manufactured with different embossings. Various designs from leather embossing to technical embossing are available.

Widths of embossed sheets

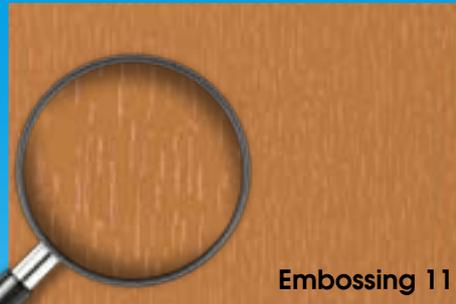
- Standard width up to **1250 mm**:
4, 5, 7, 9, 10, 11, 13, 15, 16, 17

- Over width up to **2500 mm**:
4, 7, 9, 10



THERMODET®

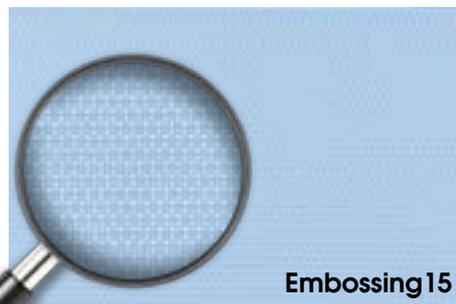
Surfaces of the Plastic Sheets



All our products have been developed especially for the single-sheet respectively the twin-sheet thermoforming process. In this way our customers benefit from the best properties for thermoforming and the rework by means of milling, cutting, welding, gluing, varnishing and printing.

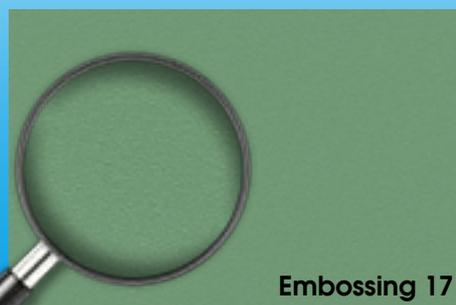
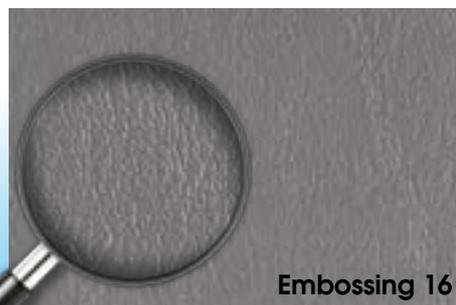


Our technical department will provide you a qualified support regarding technical questions about our products.



Widths of embossed sheets

- Standard width up to **1250 mm**:
4, 5, 7, 9, 10, 11, 13, 15, 16, 17
- Over width up to **2500 mm**:
4, 7, 9, 10



THERMODET®

Development & Quality of the Plastic Sheets

The highest priority in all sectors is to find challenging and customer oriented solutions of a reliable quality. MITRAS MATERIALS perceives the consensus with the customer as a basic requirement for building and maintaining a long term and trustful commercial partnership.

Development, production and service at the highest quality level

Our R&D facilities dispose of an own laboratory extruder for product developments and the experience of more than 8000 matched colours and material developments. The development and matching of colours is generally effected in-house according to the customer's request (master batch). According to the application we create individual and reproducible material recipes and

are known for a quick sampling of colours and recipes. We have complex testing equipment available for the integrated quality inspection covering all levels of the process.

MITRAS MATERIALS' customers appreciate the quick and qualified support und project experience of our technical and sales team.



THERMODET®

Development & Quality
of the Plastic Sheets



We set a high value on dedicated and self-dependent employees and a plain, customer orientated organisation with quick decision-making up to the management level.

Environmental awareness

Our ambition is to protect, to maintain and to ameliorate the environment. The economical and efficient use of resources (e.g. energy management), an efficient recycling concept which includes also the possibility to re-use the recycling material of the customer, our captive water treatment and the use of cadmium-free colours are examples for the environmental care of MITRAS MATERIALS.



Plan your future with
a strong business partner –

MITRAS MATERIALS
located in Weiden/Germany –
more than 50 years
experience in extrusion.