

PLASTIC

# MAKE THE BEST CHOICE

- GUIDE TO PACKAGING MATERIAL

APET

DPET

RPET

CPET

OPS

HIPS

PP

PP Chalk

PP/  
EVOH/  
PP

PLA

**ALU-  
MINIUM**

PLAIN

LACQUER/  
PLAIN

PLAIN/  
LACQUER/  
EPOXY

PLAIN/  
LACQUER/  
VINYL

PLAIN/  
LACQUER/  
POLYESTER

PLAIN/  
LACQUER/  
POLYPRO-  
PYLENE

**CERTI-  
FICATES**



# PLASTIC

- GUIDE TO PLASTIC PACKAGING



APET
DPET
RPET
CPET
OPS
HIPS
PP
PP Chalk
PP/ EVOH/ PP
PLA
<b>ALU- MINIUM</b>
PLAIN
LACQUER/ PLAIN
PLAIN/ LACQUER/ EPOXY
PLAIN/ LACQUER/ VINYL
PLAIN/ LACQUER/ POLYESTER
PLAIN/ LACQUER/ POLYPRO- PYLENE
<b>CERTI- FICATES</b>

Material	Appearance	Scope of temperature	Use	Shelf life*	Barrier oxygen cc/m <sup>2</sup> /24h	Barrier water vapour cc/m <sup>2</sup> /24h	Food Safety Migration tests**
APET	Glass clear	-40°C - 70°C	All types	Long term	20-40	11-16	X=70, Y=70, Z=70
DPET	Glass clear	-40°C - 70°C	All types	Long term	20-40	11-16	X=70, Y=70, Z=70
RPET	Glass clear	-40°C - 70°C	All types	Long term	20-40	11-16	X=70, Y=70, Z=70
CPET	Opaque, coloured	-40°C - 220°C	All types	Long term	20-40	11-16	X=175, Y=100, Z=100
OPS	Glass clear	0°C - 70°C	Dry and cold food	Short term	1680-1900	21-24	X=70, Y=70, Z=70
HIPS	Glass clear	-40°C - 70°C	Dry and cold food	Short term	1500	12-14	X=70, Y=70, Z=70
PP	Semi-transparent	-40°C - 130°C	All types	Long term	149	6-8	X=130, Y=100, Z=100
PP Chalk	Opaque, coloured	-40°C - 121°C	All types	Long term	72,5	6-8	X=130, Y=100, Z=100
PP/EVOH/PP	Semi-transparent	-18°C - 121°C	All types	Long term	0,01-0,1	0,1-0,3	X=121, Y=100, Z=100
PLA	Clear	0°C - 40°C	Cold food	Short term	< 50	< 12	X=40, Y=40, Z=40

\*Packaging test must always be carried out by the food manufacturer in order to determine the exact shelf life and functionality.

\*\* Migration tests are done where applicable to ensure compliance to relevant legislation. Declaration of Compliance can be issued upon request.

\*\*\*PLA also tested 10 days at 40°C in water



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PP/  
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POLYESTER

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LACQUER/  
POLYPRO-  
PYLENE

**CERTI-  
FICATES**

# APET

Amorphous Polyethylene Terephthalate



Amorf PET (APET), Crystalline PET (CPET) and direct-to-sheet PET (DPET) are the three main PET materials. APET and CPET are sandwich constructions A-B-A, where A is virgin material and the middle layer B can contain recycled production waste. Whereas DPET is a single layer film with external silicone. The amorphous structure of APET provides glass quality clear packaging solutions.

APET, which can be used within temperature ranges of -40°C to +70°C, is a very tough plastic material with high impact strength. The key features combined with extremely effective barrier properties against water, carbon dioxide, oxygen and nitrogen makes it a *clear* winner for food packaging when appearance is a priority, eg. fresh salads. Apet is therefore also suitable for lids used in combination with other plastic or aluminium packagings.

As post consumer waste APET is also valuable. It can be recycled into new raw material for non-food purposes and incinerated with energy recovery.

<b>Appearance</b>	Glass clear
<b>Scope of temperature</b>	-40°C - 70°C
<b>Use</b>	All types
<b>Shelf Life</b>	Long term*
<b>Barrier oxygen</b>	20-40 cc/m <sup>2</sup> /24h
<b>Barrier water vapour</b>	11-16 cc/m <sup>2</sup> /24h



Migration tests are done where applicable to ensure compliance to relevant legislation. Declaration of Compliance can be issued upon request.

\*Packaging test must always be carried out by the food manufacturer in order to determine the exact shelf life and functionality.



# DPET

Clear Polyethylene Terephthalate



PET

Direct-to-sheet PET (DPET), Crystalline PET (CPET) and amorphous PET (APET) are the three main PET materials. In contrast to APET and CPET being sandwich constructions A-B-A, where A is virgin material and the middle layer B can contain recycled production waste, is DPET a single layer film with external silicone. The structure of DPET provides glass quality clear packaging solutions.

DPET, which can be used within temperature ranges of -40°C to +70°C, is a very tough plastic material with high impact strength. The key features combined with extremely effective barrier properties against water, carbon dioxide, oxygen and nitrogen makes it a *clear* winner for food packaging when appearance is a priority, eg. fresh salads. Apet is therefore also suitable for lids used in combination with other plastic or aluminium packagings.

As post consumer waste DPET is also valuable. It can be recycled into new raw material for non-food purposes and incinerated with energy recovery.

<b>Appearance</b>	Glass clear
<b>Scope of temperature</b>	-40°C - 70°C
<b>Use</b>	All types
<b>Shelf Life</b>	Long term*
<b>Barrier oxygen</b>	20-40 cc/m <sup>2</sup> /24h
<b>Barrier water vapour</b>	11-16 cc/m <sup>2</sup> /24h
Migration tests are done where applicable to ensure compliance to relevant legislation. Declaration of Compliance can be issued upon request.	



\*Packaging test must always be carried out by the food manufacturer in order to determine the exact shelf life and functionality.



# rPET

Recycled Polyethylene Terephthalate



Recycled PET (rPET) is within the PET family of materials. rPET is a sandwich construction, A-B-A, where A is 7,5% virgin PET on both sides of the B-layer, which consists of 35% scrap from production processes, and of 50% recycled post consumer PET from bottles. Using only certified rPET in the middle layer we can guarantee food safety while using up to 85% recycled material.

RPET which can be used within temperature ranges of -40°C to +70°C, is a very tough plastic material with high impact strength. Extremely effective barrier properties against water, carbon dioxide, oxygen and nitrogen combined with key features like glass quality clarity makes it a *clear* winner for food packaging when appearance is a priority, eg. for displaying fresh salads. The rPET is on top an environmentally very sound solution.

As post consumer waste rPET is also valuable. It can be recycled several times and incinerated with energy recovery.

<b>Appearance</b>	Glass clear
<b>Scope of temperature</b>	-40°C - 70°C
<b>Use</b>	All types
<b>Shelf Life</b>	Long term*
<b>Barrier oxygen</b>	20-40 cc/m <sup>2</sup> /24h
<b>Barrier water vapour</b>	11-16 cc/m <sup>2</sup> /24h
Migration tests are done where applicable to ensure compliance to relevant legislation. Declaration of Compliance can be issued upon request.	



\*Packaging test must always be carried out by the food manufacturer in order to determine the exact shelf life and functionality.



# CPET

Crystalline Polyethylene Terephthalate



Amorf PET (APET), Crystalline PET (CPET) and direct-to-sheet PET (DPET) are the three main PET materials. APET and CPET are sandwich constructions A-B-A, where A is virgin material and the middle layer B can contain recycled production waste. Whereas DPET is a single layer film with external silicone. The partial crystalline structure of CPET provides packaging solutions with opaque appearance and offers extreme stability at high temperatures and superb impact strength at low temperatures. CPET is suitable for use within temperature ranges of  $-40^{\circ}\text{C}$  to  $+220^{\circ}\text{C}$ .

As a standard for almost all our CPET packaging solutions we offer an APET top layer which beyond a nice glossy appearance also provides excellent sealing properties. The key features combined with extremely effective barrier properties against water, carbon dioxide, oxygen and nitrogen makes it a *clear* solution for ready meals which goes for final preparation in either microwave or conventional ovens.

As post consumer waste CPET is also valuable. It can be recycled into new raw material for non-food purposes and incinerated with energy recovery.

<b>Appearance</b>	Opaque, coloured
<b>Scope of temperature</b>	$-40^{\circ}\text{C}$ - $220^{\circ}\text{C}$
<b>Use</b>	All types
<b>Shelf Life</b>	Long term*
<b>Barrier oxygen</b>	20-40 cc/m <sup>2</sup> /24h
<b>Barrier water vapour</b>	11-16 cc/m <sup>2</sup> /24h
Migration tests are done where applicable to ensure compliance to relevant legislation. Declaration of Compliance can be issued upon request.	



\*Packaging test must always be carried out by the food manufacturer in order to determine the exact shelf life and functionality.





APET

DPET

RPET

CPET

OPS

HIPS

PP

PP Chalk

PP/  
EVOH/  
PP

PLA

**ALU-  
MINIUM**

PLAIN

LACQUER/  
PLAIN

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LACQUER/  
EPOXY

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PLAIN/  
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POLYPRO-  
PYLENE

**CERTI-  
FICATES**

Polystyrene (PS) is one of the most widely-used materials for food packaging. It is a hard, crystal-clear material, but also somewhat brittle. Several varieties of PS are manufactured, depending on what they are to be used for.

OPS is oriented, i.e. the extruded foil is stretched, which aligns the molecular chains and affects the mechanical properties of the foil. An oriented material becomes stronger – or in this case harder.

OPS can be used at temperatures ranging from 0°C to +70°C and it is thus suitable as packaging for dry and primarily cold foods, which will not be heated up in the packaging.

OPS is also valuable as post-consumer waste. It can be recycled into new raw material for non-food purposes and incinerated with energy recovery.

<b>Appearance</b>	Glass clear
<b>Scope of temperature</b>	0°C - 70°C
<b>Use</b>	Dry and cold food
<b>Shelf Life</b>	Short term*
<b>Barrier oxygen</b>	1680-1900 cc/m <sup>2</sup> /24h
<b>Barrier water vapour</b>	21-24 cc/m <sup>2</sup> /24h
Migration tests are done where applicable to ensure compliance to relevant legislation. Declaration of Compliance can be issued upon request.	



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# HIPS

High Impact Polystyrene



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PP

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PP/  
EVOH/  
PP

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POLYPRO-  
PYLENE

**CERTI-  
FICATES**

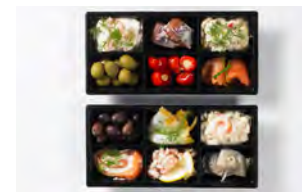
Polystyrene is one of the most widely-used materials for food packaging. It is a hard, crystal-clear material, but also somewhat brittle. Several varieties of PS are manufactured, depending on what they are to be used for.

HIPS is a type of PS to which butadiene rubber has been added, which makes the material softer and gives it greater impact strength. Other properties are improved at the same time, so that HIPS withstands frost.

HIPS can be used at temperatures ranging from -40°C to +70°C and is suitable as packaging for dry and primarily cold foods which will not be heated up in the packaging. HIPS withstands lower temperatures than OPS and is also more resistant to fat.

HIPS is also valuable as post-consumer waste. It can be recycled into new raw material for non-food purposes and incinerated with energy recovery.

<b>Appearance</b>	Glass clear
<b>Scope of temperature</b>	-40°C - 70°C
<b>Use</b>	Dry and cold food
<b>Shelf Life</b>	Short term*
<b>Barrier oxygen</b>	1500 cc/m <sup>2</sup> /24h
<b>Barrier water vapour</b>	12-14 cc/m <sup>2</sup> /24h
Migration tests are done where applicable to ensure compliance to relevant legislation. Declaration of Compliance can be issued upon request.	



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PYLENE

**CERTI-  
FICATES**

Polypropylene is a thermoplastic polymer with a wide range of uses, including food packaging. It is a robust material with high resistance to chemical solvents, acids and alkalis.

There are three main types of polypropylene: a homopolymer, a random copolymer and a block copolymer. Homopolypropylene (HoPP) consists of chains of polymerised propylene units (monomers). HoPP is particularly suitable for hot filling and re-heating in a microwave.

Copolymer Polypropylene, Block (CoPP) consists of chains of polymerised propylene units with copolymerised polyethylene (PE) on the chains.

CoPP is less transparent than HoPP, and may appear slightly milky. CoPP is softer and tougher than HoPP, and thus has greater impact strength and withstands lower temperatures. CoPP can be used at temperatures ranging from -40°C to +130°C and it is thus particularly suitable for hot filling and re-heating in a microwave. CoPP, like the other varieties of PP, constitutes an extremely effective barrier to aqueous vapour.

PP is also valuable as post-consumer waste. It can be recycled into new raw material for non-food purposes and incinerated with energy recovery.

<b>Appearance</b>	Semi-transparent
<b>Scope of temperature</b>	-40°C - 130°C
<b>Use</b>	All types
<b>Shelf Life</b>	Long term*
<b>Barrier oxygen (500 my)</b>	149 ml/m <sup>2</sup> /24h
<b>Barrier water vapour</b>	6-8 cc/m <sup>2</sup> /24h
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POLYPRO-  
PYLENE

CERTI-  
FICATES

# PP Chalk

Polypropylene w/ chalk



Polypropylene is a thermoplastic polymer with a wide range of uses, including food packaging. It is a robust material with high resistance to chemical solvents, acids and alkalis.

There are three main types of polypropylene: a homopolymer, a random copolymer and a block copolymer.

Copolymer Polypropylene consists of chains of polymerized propylene units with copolymerized polyethylene (PE) on the chains. The strength and mechanical properties of Polypropylene can be improved by mixing the copolymer Polypropylene with chalk. This leaves a product which is easier to thermoform and process and which is more temperature stable. The chalk level may vary pending on the request. The foil used for this purpose is the content of chalk more than 50 %.

The foil is coextruded with a thin layer of PP on the food contact.

PP Chalk is opaque and can be delivered in several colors. PP Chalk can be used at temperatures ranging from -40°C to +121°C in microwave - not conventional oven. It is thus particularly suitable for hot filling and re-heating in a microwave. PP Chalk, like the other varieties of PP, constitutes an extremely effective barrier to aqueous vapor.

PP Chalk is also valuable as post-consumer waste. It can be recycled into new raw material for non-food-contact purposes and incinerated with energy recovery.

<b>Appearance</b>	Opaque, coloured
<b>Scope of temperature</b>	-40°C - 121°C
<b>Use</b>	All types
<b>Shelf Life</b>	Long term*
<b>Barrier oxygen (500 my)</b>	72,5 ml/m <sup>2</sup> /24h
<b>Barrier water vapour</b>	6-8 cc/m <sup>2</sup> /24h
Migration tests are done where applicable to ensure compliance to relevant legislation. Declaration of Compliance can be issued upon request.	



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# PP/EVOH/PP



Polypropylene w/ Ethylene Vinyl Alcohol

APET

DPET

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CPET

OPS

HIPS

PP

PP Chalk

PP/  
EVOH/  
PP

PLA

**ALU-  
MINIUM**

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PYLENE

**CERTI-  
FICATES**

PP/EVOH/PP is a co-extruded material consisting of outer layers of CoPP with a barrier layer in the middle. As an integrated whole, the material forms an extremely effective barrier to oxygen and aqueous vapour.

Polypropylene is a thermoplastic polymer with a wide range of uses, including food packaging. It is a robust material with high resistance to chemical solvents, acids and alkalis.

Because of its barrier properties, EVOH (Ethylene-Vinyl Alcohol) is highly suitable as packaging for foods. EVOH keeps oxygen out and retains nitrogen and carbon dioxide, the gases used in MAP (Modified Gas Packaging). EVOH also has a good resistance to fat and prevents loss of flavour and aroma.

PP/EVOH/PP is suitable for hot filling and for re-heating food in a microwave.

PP/EVOH/PP is also valuable as post-consumer waste. It can be recycled into new raw material for non-food purposes and incinerated with energy recovery.

<b>Appearance</b>	Semi-transparent
<b>Scope of temperature</b>	-18°C - 121°C
<b>Use</b>	All types
<b>Shelf Life</b>	Long term*
<b>Barrier oxygen</b>	0,01-0,1 cc/m <sup>2</sup> /24h
<b>Barrier water vapour</b>	0,1-0,3 cc/m <sup>2</sup> /24h
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# PLA

Polylactic Acid



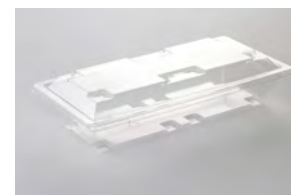
PETE

Polylactic Acid, better known as PLA, is a biodegradable, thermoplastic, aliphatic polyester made of 100% renewable resources, since it is made by fermentation of starches, e.g. from maize or sugar cane.

PLA is a transparent, relatively brittle material, with gloss and clarity comparable with PS. The strength of PLA is on the same level as PET. PLA has a good resistance to fat and prevents loss of flavour and aroma. PLA can be used at temperatures ranging from 0°C to +40°C.

PLA is broken down biologically in industrial composting systems. The plastic is decomposed into lactic acid in high humidity and at high temperatures in the course of 45-60 days, and can then be reconverted to monomers and polymers, or the lactic acid can be broken down by microorganisms into carbon dioxide, water and organic matter.

<b>Appearance</b>	Clear
<b>Scope of temperature</b>	0°C - 40°C
<b>Use</b>	Cold food
<b>Shelf Life</b>	Short term*
<b>Barrier oxygen</b>	< 50 cc/m <sup>2</sup> /24h
<b>Barrier water vapour</b>	< 12 cc/m <sup>2</sup> /24h
Migration tests are done where applicable to ensure compliance to relevant legislation. Declaration of Compliance can be issued upon request.	



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# ALUMINIUM



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**CERTI-  
FICATES**

Material outside	Material inside	Scope of temperature °C	Use	Shelf life	Barrier oxygen	Barrier water vapour
plain	plain	-40°C - 350°C	not acidic or salty food	long term*	Impervious	Impervious
lacquer	plain	-40°C - 200°C	not acidic or salty food	long term*	Impervious	Impervious
plain/ lacquer	epoxy	-40°C - 200°C	all food types	long term*	Impervious	Impervious
plain/ lacquer	vinyl	-40°C - 130°C	all food types	long term*	Impervious	Impervious
plain/ lacquer	polyester	-40°C - 200°C	all food types	long term*	Impervious	Impervious
plain/ lacquer	polypropylene	-40°C - 130°C	all food types	long term*	Impervious	Impervious

\*Packaging test must always be carried out by the food manufacturer in order to determine the exact shelf life and functionality.

Aluminium is the most abundant metallic element in the earth's crust with enough economically available reserves to supply at least another 300 years of current demand.

Thanks to the key properties like heat conductivity, formability, hygiene, oven-ability/micro-wave-ability, 100% barrier, decoration and recyclability – aluminium foil containers offer a unique combination of properties, which help to prevent spoilage and food waste and provide other great benefits along the food chain right to the end consumer.

The impervious barrier of aluminium allows for a long shelf life - and can be closed with aluminium or plastic lids allowing also for packaging which requires modified gas packaging (MAP).

Aluminium foil can be used plain or come with different surface coatings which enlarge the scope of use.

Development of new and stronger alloys together with design optimization leads consistently to achieving "more with less", a down gauging trend which the aluminium industry raw material suppliers and Plus Pack is committed to continue. Aluminium is considered a valuable material and therefore to a great extent collected for recycling.

Aluminium is 100% recyclable from all sources and can even be recovered from bottom ashes if post consumer waste is disposed off for waste incineration. Landfill of aluminium can be done without any risk to environment but is considered a waste of a precious resource.

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# ALUMINIUM

Plain / plain



Plain aluminium is an ideal food packaging material. It is hygienic, has unique barrier properties by virtue of its ability to protect the contents against the penetration of light, grease, water etc and against oxygen and CO<sub>2</sub> when hermetically sealed packing is used.

Plain aluminium packaging is suitable for a wide range of products regardless of whether the product is to be frozen, grilled, baked, boiled or just kept fresh.

Where design provides a flat sealing rim, the food container can be heat sealed with flexible film which allows flushing with modified gas (MAP).

However, many foods vary widely in composition and can for example contain different additives, even within the same product type. Some of these substances can decisively affect on the ability of the aluminium packaging to withstand corrosion.

Aluminium has a high corrosion resistance because it is naturally protected by a layer of aluminium oxide. Food with pH values outside the range 4-8,5 and/or with high concentrations of chloride, iron, copper, nitrite and nitrate should however be critically assessed with regard to temperatures, time and air contact.\*

<b>Material outside // inside</b>	Plain // plain
<b>Scope of temperature</b>	-40°C - 350°C
<b>Use</b>	Not acidic or salty food
<b>Shelf Life</b>	* Short to medium term
<b>Barrier oxygen</b>	Impervious
<b>Barrier water vapour</b>	Impervious
Migration tests are done where applicable to ensure compliance to relevant legislation. Declaration of Compliance can be issued upon request.	



\*Packaging test must always be carried out by the food manufacturer in order to determine the exact shelf life and functionality.



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**ALU-  
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PYLENE

**CERTI-  
FICATES**

# ALUMINIUM

Lacquer / plain



Aluminium is an ideal food packaging material. It is hygienic, has unique barrier properties by virtue of its ability to protect the contents against the penetration of light, grease, water etc and against oxygen and CO<sub>2</sub> when hermetically sealed packing is used.

Plain aluminium packaging is suitable for a wide range of products regardless of whether the product is to be frozen, grilled, baked, boiled or just kept fresh.

The aluminum foil can be applied a decoration lacquer outside, but the packaging is still to be regarded as plain when considering food safety and food contact.

Where design provides a flat sealing rim, the food container can be heat sealed with flexible film which allows flushing with modified gas (MAP).

However, many foods vary widely in composition and can for example contain different additives, even within the same product type. Some of these substances can decisively affect on the ability of the aluminium packaging to withstand corrosion.

Aluminium has a high corrosion resistance because it is naturally protected by a layer of aluminium oxide. Food with pH values outside the range 4-8,5 and/or with high concentrations of chloride, iron, copper, nitrite and nitrate should however be critically assessed with regard to temperatures, time and air contact.\*

<b>Material outside // inside</b>	Lacquer // plain
<b>Scope of temperature</b>	-40°C - 200°C
<b>Use</b>	Not acidic or salty food
<b>Shelf Life</b>	* Short to medium term
<b>Barrier oxygen</b>	Impervious
<b>Barrier water vapour</b>	Impervious
Migration tests are done where applicable to ensure compliance to relevant legislation. Declaration of Compliance can be issued upon request.	



\*Packaging test must always be carried out by the food manufacturer in order to determine the exact shelf life and functionality.



# ALUMINIUM

Plain/lacquer / protection lacquer



Aluminium is an ideal food packaging material. It is hygienic, has unique barrier properties by virtue of its ability to protect the contents against the penetration of light, grease, water etc and against oxygen and CO<sub>2</sub> when hermetically sealed packing is used.

Where design provides a flat sealing rim, the food container can be heat sealed with an aluminium lidding or a flexible film which allows boiling, sterilization or flushing with modified gas (MAP).

However, many foods vary widely in composition and can for example contain different additives, even within the same product type. Some of these substances can decisively affect on the ability of the aluminium packaging to withstand corrosion, but this can be avoided by using an inside protection lacquer.

- Option: BPA NIA free lacquer is available outside/inside.

<b>Material outside // inside</b>	Plain/lacquer // protection lacquer
<b>Scope of temperature</b>	-40°C - 200°C
<b>Use</b>	All food types
<b>Shelf Life</b>	Long term*
<b>Barrier oxygen</b>	Impervious
<b>Barrier water vapour</b>	Impervious
Migration tests are done where applicable to ensure compliance to relevant legislation. Declaration of Compliance can be issued upon request.	



\*Packaging test must always be carried out by the food manufacturer in order to determine the exact shelf life and functionality.



APET

DPET

RPET

CPET

OPS

HIPS

PP

PP Chalk

PP/  
EVOH/  
PP

PLA

**ALU-  
MINIUM**

PLAIN

LACQUER/  
PLAIN

PLAIN/  
LACQUER/  
EPOXY

PLAIN/  
LACQUER/  
VINYL

PLAIN/  
LACQUER/  
POLYESTER

PLAIN/  
LACQUER/  
POLYPRO-  
PYLENE

**CERTI-  
FICATES**

# ALUMINIUM

Plain/lacquer / vinyl lacquer



Aluminium is an ideal food packaging material. It is hygienic, has unique barrier properties by virtue of its ability to protect the contents against the penetration of light, grease, water etc and against oxygen and CO<sub>2</sub> when hermetically sealed packing is used.

Where design provides a flat sealing rim, the food container can be heat sealed with an aluminium lidding or a flexible film which allows boiling, sterilization or flushing with modified gas (MAP).

However, many foods vary widely in composition and can for example contain different additives, even within the same product type. Some of these substances can decisively affect on the ability of the aluminium packaging to withstand corrosion, but this can be avoided by using an inside vinyl lacquer.

The inside vinyl lacquer application is widely used for portion packs, for condensed milk, pate or other food products which require sterilization to obtain a long term shelf life. The lidding material must be constructed to match the properties of the vinyl lacquer to make a complete and sufficient system.

<b>Material outside // inside</b>	Plain/lacquer // vinyl lacquer
<b>Scope of temperature</b>	-40°C - 130°C
<b>Use</b>	All food types
<b>Shelf Life</b>	Long term*
<b>Barrier oxygen</b>	Impervious
<b>Barrier water vapour</b>	Impervious



Migration tests are done where applicable to ensure compliance to relevant legislation. Declaration of Compliance can be issued upon request.

\*Packaging test must always be carried out by the food manufacturer in order to determine the exact shelf life and functionality.



APET

DPET

RPET

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OPS

HIPS

PP

PP Chalk

PP/  
EVOH/  
PP

PLA

**ALU-  
MINIUM**

PLAIN

LACQUER/  
PLAIN

PLAIN/  
LACQUER/  
EPOXY

PLAIN/  
LACQUER/  
VINYL

PLAIN/  
LACQUER/  
POLYESTER

PLAIN/  
LACQUER/  
POLYPRO-  
PYLENE

**CERTI-  
FICATES**

# ALUMINIUM

Plain/lacquer / polyester lacquer



Aluminium is an ideal food packaging material. It is hygienic, has unique barrier properties by virtue of its ability to protect the contents against the penetration of light, grease, water etc and against oxygen and CO<sub>2</sub> when hermetically sealed packing is used.

Where design provides a flat sealing rim, the food container can be heat sealed with an aluminium lidding or a flexible film which allows boiling, sterilization or flushing with modified gas (MAP).

However, many foods vary widely in composition and can for example contain different additives, even within the same product type. Some of these substances can decisively affect on the ability of the aluminium packaging to withstand corrosion, but this can be avoided by using an inside polyester lacquer.

The polyester lacquer application is widely used where high temperature resistance is needed for example for Ready2Cook<sup>®</sup> products with long term shelf lives and/or aggressive food products.

- Option: BPA NIA free lacquer is available outside/inside.

<b>Material outside // inside</b>	Plain/lacquer // polyester lacquer
<b>Scope of temperature</b>	-40°C - 200°C
<b>Use</b>	All food types
<b>Shelf Life</b>	Long term*
<b>Barrier oxygen</b>	Impervious
<b>Barrier water vapour</b>	Impervious
Migration tests are done where applicable to ensure compliance to relevant legislation. Declaration of Compliance can be issued upon request.	



\*Packaging test must always be carried out by the food manufacturer in order to determine the exact shelf life and functionality.



APET

DPET

RPET

CPET

OPS

HIPS

PP

PP Chalk

PP/  
EVOH/  
PP

PLA

**ALU-  
MINIUM**

PLAIN

LACQUER/  
PLAIN

PLAIN/  
LACQUER/  
EPOXY

PLAIN/  
LACQUER/  
VINYL

PLAIN/  
LACQUER/  
POLYESTER

PLAIN/  
LACQUER/  
POLYPRO-  
PYLENE

**CERTI-  
FICATES**

# ALUMINIUM

Plain/lacquer / polypropylene laminate



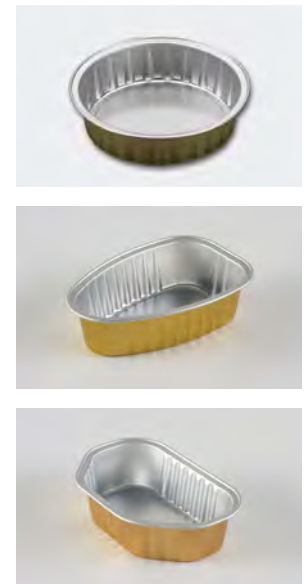
Aluminium is an ideal food packaging material. It is hygienic, has unique barrier properties by virtue of its ability to protect the contents against the penetration of light, grease, water etc and against oxygen and CO<sub>2</sub> when hermetically sealed packing is used.

Where design provides a flat sealing rim, the food container can be heat sealed with an aluminium lidding or a flexible film which allows boiling, sterilization or flushing with modified gas (MAP).

However, many foods vary widely in composition and can for example contain different additives, even within the same product type. Some of these substances can decisively affect on the ability of the aluminium packaging to withstand corrosion, but this can be avoided by using an inside polypropylene lacquer, which also in combination with matching lidding material provides a very secure seal - and peel system.

The inside polypropylene laminate application is widely used for portion packs, for pâté, ready meals or other food products which require sterilization to obtain a long term shelf life. The lidding material must be constructed to match the properties of the pp laminate to make a complete and sufficient system.

<b>Material outside // inside</b>	Plain/lacquer // polypropylene laminate
<b>Scope of temperature</b>	-40°C - 130°C
<b>Use</b>	All food types
<b>Shelf Life</b>	Long term*
<b>Barrier oxygen</b>	Impervious
<b>Barrier water vapour</b>	Impervious
Migration tests are done where applicable to ensure compliance to relevant legislation. Declaration of Compliance can be issued upon request.	



\*Packaging test must always be carried out by the food manufacturer in order to determine the exact shelf life and functionality.



PLASTIC

APET

DPET

RPET

CPET

OPS

HIPS

PP

PP Chalk

PP/  
EVOH/  
PP

PLA

**ALU-  
MINIUM**

PLAIN

LACQUER/  
PLAIN

PLAIN/  
LACQUER/  
EPOXY

PLAIN/  
LACQUER/  
VINYL

PLAIN/  
LACQUER/  
POLYESTER

PLAIN/  
LACQUER/  
POLYPRO-  
PYLENE

**CERTI-  
FICATES**

# CERTIFICATES & SYMBOLS



## QUALITY IN ALL ASPECTS



ISO 9001



BRC/IOP



ISO 14001

Plus Pack has made its name creating innovative, quality packaging solutions. We strive to fulfill our customers' ultimate goal of boosting the sale of their products and believe that through elegantly designed, well-crafted packaging we are able to do just that. To live up to our ideal we emphasize quality in all aspects of our business.

Our quality management system shall comply with the requirements in the standards ISO 9001 and BRC/IOP Packaging. Independent and recognized laboratories certifies the use of different raw materials for our food packaging solutions.

As part of our environmental policy in accordance with our ISO 14001 environmental certificate, Plus Pack will do its utmost to use raw materials most efficiently and increase its level of Post Consumer Waste in our packaging solutions.

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