LOTADER® 4603 *(Formerly EDA XR 0307)*

Multipurpose Adhesive for Extrusion Processes

Description

LOTADER 4603 is a random terpolymer of Ethylene, Acrylic Ester and Maleic Anhydride, polymerized by high pressure process in autoclave reactor.

Main applications

LOTADER 4603 is a multipurpose extrusion adhesive used to bond PET homo or copolymers to EVOH and PE in flexible and rigid applications.

LOTADER 4603 can also be used as extrusion coating/lamination adhesive for a wide variety of difficult substrates like oriented plastic films (OPET, OPA, OPP), reverse printed films, PVDC coated films, etc, in combination with easier substrates like aluminium foil, metallized films, PE films, paper and board.

LOTADER 4603 is designed to be used pure in both cases.

Typical characteristics

Characteristics	Value	Unit	Test Method
Melt index (190℃ / 2,16 kg)	7-9	g/10mn	ASTM D 1238
Methyl Acrylate content	26	% wt	IRTF (internal)
Maleic Anhydride content	0.3	% wt	IRTF (internal)

Main properties

- Polymerized by high pressure process in autoclave reactor, like coating grades of LDPE, **LOTADER 4603** combines the long chain branched structure of LDPE together with polar, reactive and thermally stable comonomers.
- The ethylenic backbone of **LOTADER 4603** makes it highly compatible with LDPE, as well as with most ethylene copolymers.
- Acrylic ester brings softness and polarity, while staying thermally stable during processing.
- Maleïc Anhydride gives reactivity, leading to very versatile adhesive properties to polar and non polar substrates in coating / lamination, and to molten polymers in coextrusion.
- Compared to LOTADER 4503 as adhesive for extrusion coating/lamination, **LOTADER 4603** exhibits stronger adhesive interactions and a lower melting point.
- **LOTADER 4603** can be extruded in monolayer for lamination, but the best processing performance regarding web stability and neck-in will be obtained in coextrusion with LDPE.
- Proposed as a ready-to-use lamination adhesive, **LOTADER 4603** does not stick to nip or chill rolls when it overcoats the films being laminated. It is however not designed to be used as top layer, due to stickiness and possible blocking issues.

Processing

- **LOTADER 4603** processing is close to LDPE processing, using standard polyolefin extrusion equipment.
- **LOTADER 4603** is not corrosive. Acrylic ester and maleïc anhydride comonomers are thermally stable up to 310°C with usual residence t imes.
- Temperature profiles can be set as for LDPE extrusion, except in the feeding zone where a lower setting (about 160°C) may help avoid bridging problems.
- In case of coextrusion with thermally sensitive resins like EVOH or EVA, maximum melt temperature should be limited to 235°C. For other c ases of coextrusion, any higher setting can be chosen, to match rheologies or optimize bonding properties for instance, up to max 320 – 325°C in extrusion coating/lamination technol ogy.
- Purging **LOTADER 4603** is readily achieved using LDPE, and it is recommended to do it before shutdown. For short stopping, the screw should be kept at low rpm level to limit degradation.

Physical properties

Characteristics	Value	Unit	Test Method
Density (23°C)	0.95	g/cm ^{3}	ISO 1183
Melting point	62	°C	DSC
Vicat softening point (1 kg)	< 40	°C	ASTM D 1525 / ISO 306
Elongation at break (1)	850	%	ASTM D 638 / ISO R 527
Tensile strength at break (1)	6	MPa	ASTM D 638 / ISO R 527
Flexural modulus (1)	9	MPa	ASTM D 790 / ISO 178
Hardness Shore A (1)	76	-	ASTM D 2240

(1) On compression molded samples.

Packaging

LOTADER 4603 is commonly packed in 25 kg bags or 500 kg rigid containers. **LOTADER 4603** pellets are not moisture sensitive.

Security / Precautions of use

Safety data sheet as well as information on handling and storage of **LOTADER 4603** can be obtained from your ARKEMA representative or at www.arkema.com under heading FDS.

June 2007

Technical Polymers Division
420, rue d'Estienne d'Orves
92705 COLOMBES Cedex
www.arkema.com

www.lotader.com