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REVISION: 4

SS – 55: B21/05 - LOW DENSITY POLYETHYLENE STANDARD SPECIFICATION

1) PRODUCT DESCRIPTION: low density polyethylene, homopolymer stabilized with slip agent. Ethylene monomer is the only monomer used for producing the macromolecular product. For producing the B21/05 grade there are not used plasticizers or colored master batches. The product has natural color.

2) APLICATIONS: extrusion, films for packaging liquid products, film for co-extrusion.

3) PROPERTIES:

PROPERTIES	UM	LIMITS	TEST METHOD
APPEARANCE:	-	Uniform color granules without extraneous matter.	VISUAL
CONTAMINATION (6)(oxidizes and other defects)	%m/m	max. 0.01	VISUAL/GRAVIMETRIC
GELS (2,5) Small (0,4 – 0,8 mm) Medium (0,8 – 1,6 mm) Large (> 1,6 mm)	No. /24.6cm^3 No. /24.6cm^3 No. /24.6cm^3	max. 36 max. 5 max. 0	OWNER METHOD
PHYSICAL			
MELT FLOW INDEX (3) (190 °C / 2.16 kg)	g/10min	0,400 - 0,600	ASTM D1238
DENSITY (23 °C)(1,3)	g/cm^3	0,918 - 0,924	ASTM D792 ASTM D1505
THERMICAL			
VICAT SOFTENING TEMPERATURE (1,2) (A –50°C/h-10N)	^{0}C	min. 90	ISO 306/A
MECHANICAL PROPERTIES FOR FILM (4)			
TENSILE STRENGHT AT BREAKE (2) (23 °C, v=500mm/min) - Machine direction - Cross direction	MPa	 min. 15 min. 13	ISO 527/3
Elongation at break (2) (23 °C, v=500mm/min) - Machine direction - Cross direction	%	 min. 250 min. 350	ISO 527/3
SLIP AGENT CONTENT(3)	ppm	300 - 600	OWNER METHOD

1) The medium value of the physical/mechanical and thermical properties is measured on the standard samples made by compression process (ASTM D4703/C) conditioned at room temperature (ISO 291).
2) Periodical tests.
3) Batch tests
4) Film Thickness - 40μm, Blow Up Rate 1:2
5) The test is performed on a film sample of LxlxG = 4890x66x0.076 mm , the sample volum - 24.6±2%cm^3;
6) The granules which arren't according to appearance conditions;

ADDITIONAL INFORMATIONS:

- We confirm that our product fulfills requirements regarding European Regulation (UE) No. 10/2011 relating to plastic materials and articles intended to come into contact with food stuff/ drinking water, with all subsequent ammendments.
- Processing information:
  Thermical profile recommended for extrusion: 160-200^{0}C depending on the type of equipment.

4) QUALITY CONTROL: Control is performed on lots.

- Each lot will have max 75 tons. The lot will contain product of the same grade.
- During test operation, the product must comply all the parameters depicted in this standard specification.
- In case of litigation, the control of the quality will be done in the presence of the client representative, using the samples kept for those cases. The samples will be taken in accordance with the sampling procedure.

NOTE: All tests are performed using the supplier's testing machines.

5) SAMPLING PROCEDURE:

- Sampling will be done in accordance with the sampling procedure during packaging of the batch.
- The samples taken will be mixed in order to homogenize it and the quantity of sample will be reduced by the "quarter method" to minimum 12.5 kg and after the laboratory tests regarding the appearance / contaminants the sample will be reduce to around 2 kg. This is the control sample

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where are preserved the contaminants found in the batch and which will be used in case of litigation. The remaining sample is the working sample used to determine in laboratory the specific characteristics of the product.

NOTE: One sample is analyzed in the laboratory of the supplier, and other one is kept three months after delivery in this laboratory, for control in case of litigation.

- The bag containing the sample which will be used in case of litigation is sealed and labeled.

6) DELIVERY: CP4 Euro pallets (1375 kg /pallet), big-bags (1000kg), and bulk in container liner and silo truck.

7) GUARANTEE: The product is guaranteed 3 months after delivery under the recommended "handling, transport and storage" conditions, according to MSDS-03.

8) VALABILITY: The product is guaranteed 12 months after production data, under the recommended "handling, transport and storage" conditions, according to MSDS-03 .The valability can be extended by a new inspection and evaluation of the quality.

9) DOCUMENTS: Certificate of conformity /Test report

10) HANDLING, STORAGE AND TRANSPORT INFORMATION: According to "MATERIAL SAFETY DATA SHEET" - MSDS – 03. In case the polymer is stored in conditions of high humidity and fluctuating temperatures, the atmospheric moisture can condensate inside the packing. In this case it is recommended to dry the pellets before use. During the storage, polyethylene should not be exposed to UV radiation. Producer does not take any responsibility for damage caused by inadequate storage.

11) ADDITIONAL INFORMATIONS:

The MSDS is available by Sales Marketing Rompetrol Refining offices for the customers .The MSDS contains necessary information in order to ensure customers' own safe in handling and processing activity.
The information below is related only to the delivered product.

Safety

Polyethylene is an inert commercial polymer and under normal handling induces no hazard. Product storage must be in accordance with MSDS procedure. The working people should avoid skin or eyes contact with molten polymer. As a minimal precaution to prevent eyes injury, safety glasses are indicated.
Fabrication areas should be well ventilated. Workplace environments should be kept clean and free of dust.

Fire hazard

Polyethylene is a combustible substance, but under normal storage conditions there is no ignition hazard. In contact with flame it becomes soft, flows, ignites and burns with a light flame until exhausting (if it isn't stabilized with a flame retardant agent). Therefore it has to be handled and stored avoiding contacts with open flames or other ignition sources. While burning, it releases high heat and a dense black smoke. In closed areas, fire fighters must use self-contained breathing apparatus.

Recycling

Polyethylene is a recyclable material. It is recommended to recycle production rejects and wastes instead of disposal.

Disposal

Disposal of any wastes should respect all national and local valid regulations. The below information are related to polyethylene homopolymer. The influence of the additives, fillers or other materials added by buyers must be taken into consideration using the related documentation. Polyethylene homopolymer can be disposed by inter or by controlled incineration, respecting valid regulations regarding gaseous emission or solid particles discharges. Due to the high level of heat enduced, incineration has to be done only in dedicated units. In case of interring: polyethylene is inert, does not degrade quickly, form a strong and permanent soil base and does not release gases or other compounds known to pollute water resources.

The mission assumed by Rompetrol Refining is to build a strong partnership supplier/customer. Assuming this purpose, Rompetrol Refining intents to offer products of high quality for satisfaction of all customers' needs and expectations, to keep permanently contact with clients in order to acknowledge processing troubleshooting, to ensure technical support to solve them, to develop new products for existing or potential markets. Rompetrol Refining recognizes community concerns regarding his potential impact activity on the environment and therefore encourages his customers to review their processes from the human health and environment point of view. In order to prevent using the products in manners for which they are not intended or tested, Rompetrol Refining offer to its customers product literature, including suitable Material Safety Data Sheet, that should be consulted prior to use its products.

NOTE: We do not undertake any responsability or liability for using Rompetrol Refining *products for other purposes than the ones recommended in this standard specification. It is the customer's responsibility to inspect and test our products in order to assure himself as to their suitability for his intended use.*

NOTE REGARDING MEDICAL APPLICATION RESTRICTIONS: Rompetrol Refining *does not recommend any company product for applications that involve human tissues or internal fluids contacts - regardless of the*

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contact length of time, for cardiac devices, for medical device components that support human life, as well as for applications that have connections with human reproduction.

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