

# TECHNICAL DATA SHEET

## TIPELIN FA 381-10

### MDPE for Blown films

TIPELIN / TIPOLEN / TIPPLEN / TATREN / BRALEN+

The joint product portfolio of MOL Petrochemicals and Slovnaft provides infinite opportunities

#### DESCRIPTION

**TIPELIN FA 381-10** is a film grade of medium density polyethylene copolymer (with hexen-1 as comonomer) grade. The product has very good Elmendorf tear strength and Dart drop resistance, low gel content and good vapour barrier capacity. The grade contains antioxidants and acid scavenger.

#### APPLICATIONS

**TIPELIN FA 381-10** is recommended for bags, shopping bags, garbage bags, shrink films, multi-layer films and blend component for LDPE.

**TIPELIN FA 381-10** is suitable for food contact, for manufacturing of pharmaceutical packing products. The product complies with Food Contact and Pharmaceutical Regulations.

#### PROPERTIES

	Test method	Unit	Typical value
Melt Mass-Flow Rate (MFR) (190 °C /2.16 kg)	ISO 1133-1	g/10 min	0.28
Melt Mass-Flow Rate (MFR) (190 °C /5 kg)	ISO 1133-1	g/10 min	1.2
Melt Mass-Flow Rate (MFR) (190 °C /21.6 kg)	ISO 1133-1	g/10 min	21
Density (23 °C) *	ISO 1183-2	kg/m <sup>3</sup>	938
Tensile Strength at Yield (MD/TD)**	ISO 527-3	MPa	22/18
Tensile Strength at Break (MD/TD)**	ISO 527-3	MPa	49/42
Tensile Strain at Break (MD/TD)**	ISO 527-3	%	750/870
Elmendorf Tear Resistance (MD/TD)**	ISO 6383-2	cN	50/360
Dart Drop (F 50)**	ISO 7765-1 method A	g	85
Flexural modulus*	ISO 178	MPa	900
Spencer Impact Strength**	ASTM D 3420	MPa	34
Vicat Softening Temperature *	ISO 306/A 120	°C	120
Shore D Hardness *	ISO 868	-	60
OIT (200 °C) *	EN 728	min	30
Recommended film thickness	-	mm	0.015-0.06

Typical properties, not to be used as specification.

\* Average mechanical property values of several measurements carried out on standard pressed specimens (ISO 293) conditioned at room temperature (ISO 291).

\*\* Average mechanical property values of several measurements on film (MD = machine direction, TD = trans direction) thickness of 0.025 mm, blow up ratio 4:1.

#### PROCESSING

**TIPELIN FA 381-10** can be used in conventional extrusion machines.

Recommended processing temperatures are 180-220°C.

# TECHNICAL DATA SHEET

## TIPELIN FA 381-10

### MDPE for Blown films

TIPELIN / TIPOLEN / TIPPLEN / TATREN / BRALEN+

The joint product portfolio of MOL Petrochemicals and Slovnaft provides infinite opportunities

2

## STORAGE AND HANDLING

Pellets are packed in 25 kg PE-LD bags and transported on stretch or shrink-wrapped pallets at eligible load of polymer 1375 kg. Heat treated pallets are available as well. We use adhesive between the bags in order to avoid their slipping. Pay attention to this fact during the removing of the bags from the pallets. The preferred method is to lift the bag at first without rotation. Transportation in a road silo or rail silo is also available. For more detailed information please contact SLOVNAFT and MOL Petrochemicals sales representative.

Since polyethylene is a combustible substance, the fire safety rules applicable for combustible materials in warehouses and store rooms should be observed.

If polymer is stored in conditions of high humidity and fluctuating temperatures, then atmospheric moisture can condense inside the packing. If it happened, it is recommended the pellets to be dried before use. During the storage polyethylene should not be exposed to UV radiation and temperatures above 40°C. Producer does not take responsibility for any damages caused by adverse storage.

## REACH STATEMENT

Polymers are exempt of REACH registration. However, their raw materials which mean monomers and relevant additives have been registered. MOL Petrochemicals is committed to fully respect legislation and will only use REACH compliant raw materials. At this point in time TIPELIN does not contain any substances specifically identified as SVHC at levels greater than 0.1%.

## SAFETY

See MSDS

## RECYCLING

Polyethylene resins are suitable for recycling using modern recycling methods. In-house production waste should be kept clean to facilitate direct recycling.

## DISCLAIMER

©2018 MOL Group. To the extent the user is entitled to disclose and distribute this document, the user may forward, distribute, and/or photocopy this copyrighted document only if unaltered and complete, including all of its headers, footers, disclaimers, and other information. You may not copy this document to a web site. MOL Group does not guarantee the typical (or other) values. Analysis may be performed on representative samples and not the actual product shipped. The information in this document relates only to the named product or materials when not in combination with any other product or materials. We based the information on data believed to be reliable on the date compiled, but we do not represent, warrant, or otherwise guarantee, expressly or impliedly, the merchantability, fitness for a particular purpose, suitability, accuracy, reliability, or completeness of this information or the products, materials, or processes described. The user is solely responsible for all determinations regarding any use of material or product and any process in its territories of interest. We expressly disclaim liability for any loss, damage, or injury directly or indirectly suffered or incurred as a result of or related to anyone using or relying on any of the information in this document. There is no endorsement of any product or process, and we expressly disclaim any contrary implication. The terms, "we", "our", "MOL", or "MOL Group" are used for convenience, and may include any one or more of MOL Group, or any affiliates they directly or indirectly control. MOL Group, the MOL Group logo, and all other product names used herein are trademarks of MOL Plc. or SLOVNAFT, a.s. unless indicated otherwise.

# TECHNICAL DATA SHEET

## TIPELIN FA 381-10

### MDPE for Blown films

TIPELIN / TIPOLEN / TIPPLEN / TATREN / BRALEN+

The joint product portfolio of MOL Petrochemicals and Slovnaft provides infinite opportunities

#### MANUFACTURER

**MOL Petrochemicals Co. Ltd.**

H-3581 Tiszaújváros,

P.O. Box: 20

Hungary

#### TECHNICAL SERVICE

**MOL Plc.**

**Polymer Technical Service MOL**

H-3581 Tiszaújváros,

P.O. Box: 20

Hungary

Telephone:

+36 49 521 540

+36 80 204 248

Fax: +36 49 886 491

[E-mail: pts@mol.hu](mailto:pts@mol.hu)

#### SALES ORGANIZATION

##### GERMANY

Im Trutz Frankfurt 49,

D-60322 Frankfurt am Main, Germany

Telephone: +49 69 154 04 0

Fax: +49 69 154 04 41

E-mail: [polymersales@molgermany.de](mailto:polymersales@molgermany.de)

##### AUSTRIA

Walcherstrasse 11A, 7.Stock

A- 1020 Wien, Austria

Telephone: +43 1 211 20 1120

Fax: +43 1 211 20 1198

E-mail: [JHauk@molaustria.at](mailto:JHauk@molaustria.at)

##### ITALY

Via Montefeltro, 4

20156 Milano, Italy

Telephone: +39 02 58 30 5523

Fax: +39 02 58 30 3492

E-mail: [tvk.info@molgroupitaly.it](mailto:tvk.info@molgroupitaly.it)

##### FRANCE

Paris, France

Mobile Phone: + 33 7 89 86 10 64

Telephone: + 33 1 64 32 44 17

E-mail: [iren.husson@molgroupitaly.it](mailto:iren.husson@molgroupitaly.it)

##### POLAND

Ul. Postępu 17D

02-676 Warszawa, Poland

Telephone: +48 22 545 70 70

Fax: +48 22 545 70 60

E-mail: [petchem@slovnaft.pl](mailto:petchem@slovnaft.pl)

##### ROMANIA

Str. Danielopolu 4-6

ET1 Sector 1 Cod 014 134

Bucuresti, Romania

Telephone:

+40 21 204 85 00

+40 21 204 85 02

Fax: +40 21 232 10 59

E-mail: [petchem@molromania.ro](mailto:petchem@molromania.ro)

# TECHNICAL DATA SHEET

## TIPELIN FA 381-10

### MDPE for Blown films

TIPELIN / TIPOLEN / TIPPLEN / TATREN / BRALEN+

The joint product portfolio of MOL Petrochemicals and Slovnaft provides infinite opportunities

4

#### HUNGARY

H-3581 Tiszaújváros,  
P.O. Box: 20  
Hungary  
Telephone: +36 49 531 928  
Fax: +36 1 8877 647  
E-mail: [polymersales@mol.hu](mailto:polymersales@mol.hu)

#### UKRAINE

04073 Kiev  
Stepana Bandery ave., 23, 7th floor, of. 305,  
Ukraine  
Telephone:  
+380 44 374 00 80  
+380 67 463 58 69  
Fax: +380 44 374 00 90  
E-mail: [JZavojko@mol-ukraine.com.ua](mailto:JZavojko@mol-ukraine.com.ua)

#### OTHER EUROPEAN COUNTRIES

Telephone:  
+36 20-506-6572  
+36 70 373 9209  
Fax: +36 1 8877 647  
E-mail: [polymersales@mol.hu](mailto:polymersales@mol.hu)

#### SLOVAKIA AND CZECH REPUBLIC

Vlčie hrdlo 1  
824 12 Bratislava, Slovak Republic  
Telephone:  
+ 421 2 5859 7515  
+ 421 2 5859 7622  
+ 421 2 5859 7741  
+ 421 2 5859 7231  
E-mail: [polymersales@slovnaft.sk](mailto:polymersales@slovnaft.sk)

#### CROATIA, SLOVENIA, SERBIA, MONTENEGRO, BOSNIA AND HERZEGOVINA, FYR MACEDONIA, ALBANIA, KOSOVO

Zadarska 80 HR-10000 Zagreb, Croatia  
Telephone: +385 1 6160 600  
Fax: +385 1 6160 601  
E-mail: [polymersales@tifon.hr](mailto:polymersales@tifon.hr)

April, 2019