



**HIGH  
PERFORMANCE  
THERMOPLASTICS**

*Compounding  
Solutions*



Profile



Products



Innovation



Services



Environment

Lati S.p.A. is among the most important European manufacturers of technical thermoplastics for engineering purposes. Mixing innovation and tradition, Lati is in the forefront of creating new solutions providing thermoplastic compounds to the main industrial sectors.





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## HISTORY

**Lati S.p.A.** is among the most important European manufacturers of technical thermoplastics for engineering purposes. Founded in 1945 by Prof. Cosimo Conterno, today the company is managed by the son of the founder, Prof. Francesco Conterno.

Eco-Sustainable Compounds

High Performance & Special Compounds

Widening of International Sales Network

Electrically Conductive Compounds

Self Lubricating Compounds

Self Extinguishing Compounds

PP & PA reinforced with long and short fibers

Compounds of acetates

Foundation of LATI S.p.A.



Today



2000



1985



1980



1975



1970



1960



1950



1945

**More than 70 years of experience:  
chronological evolution of the products**





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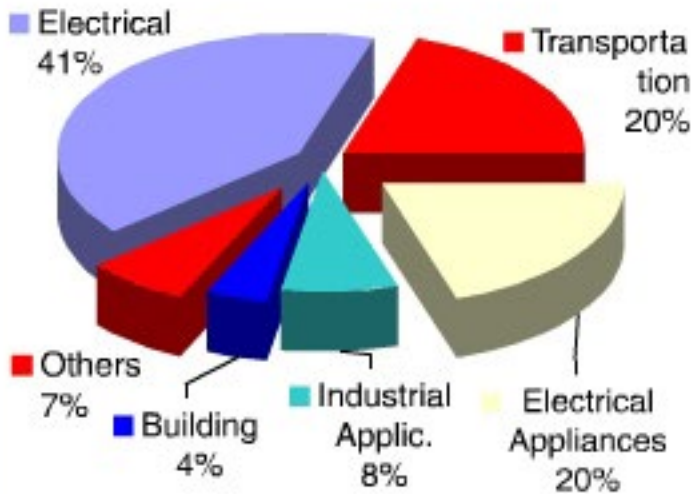
**LEADING INDICATORS**

**Production Capacity:**  
40.000 tons/year

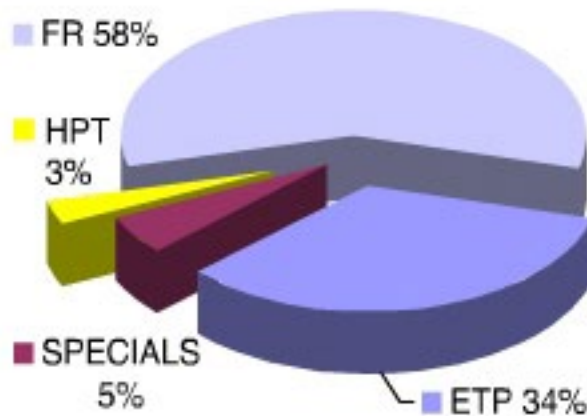
**Turnover:**  
147 millions of euro

**Active Formulations:**  
2400

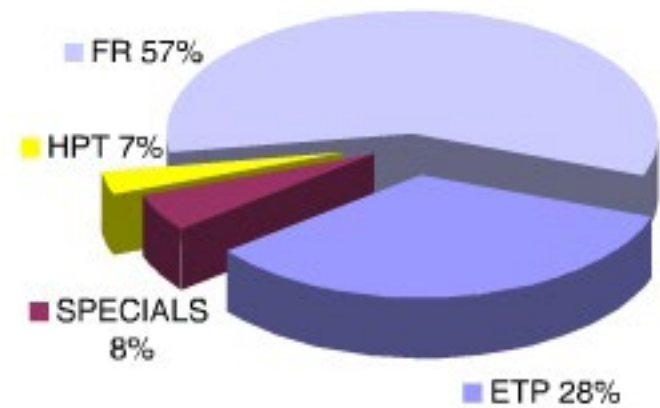
**Turnover by Industrial sector (ref. year 2018)**



**Sales Volume by product family (ref. year 2018)**



**Turnover by product family industrial (ref. year 2018)**







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## PRODUCTION SITES

**Lati Vedano Olona** - Service and Innovation



**Lati Torba** - Manufacturing







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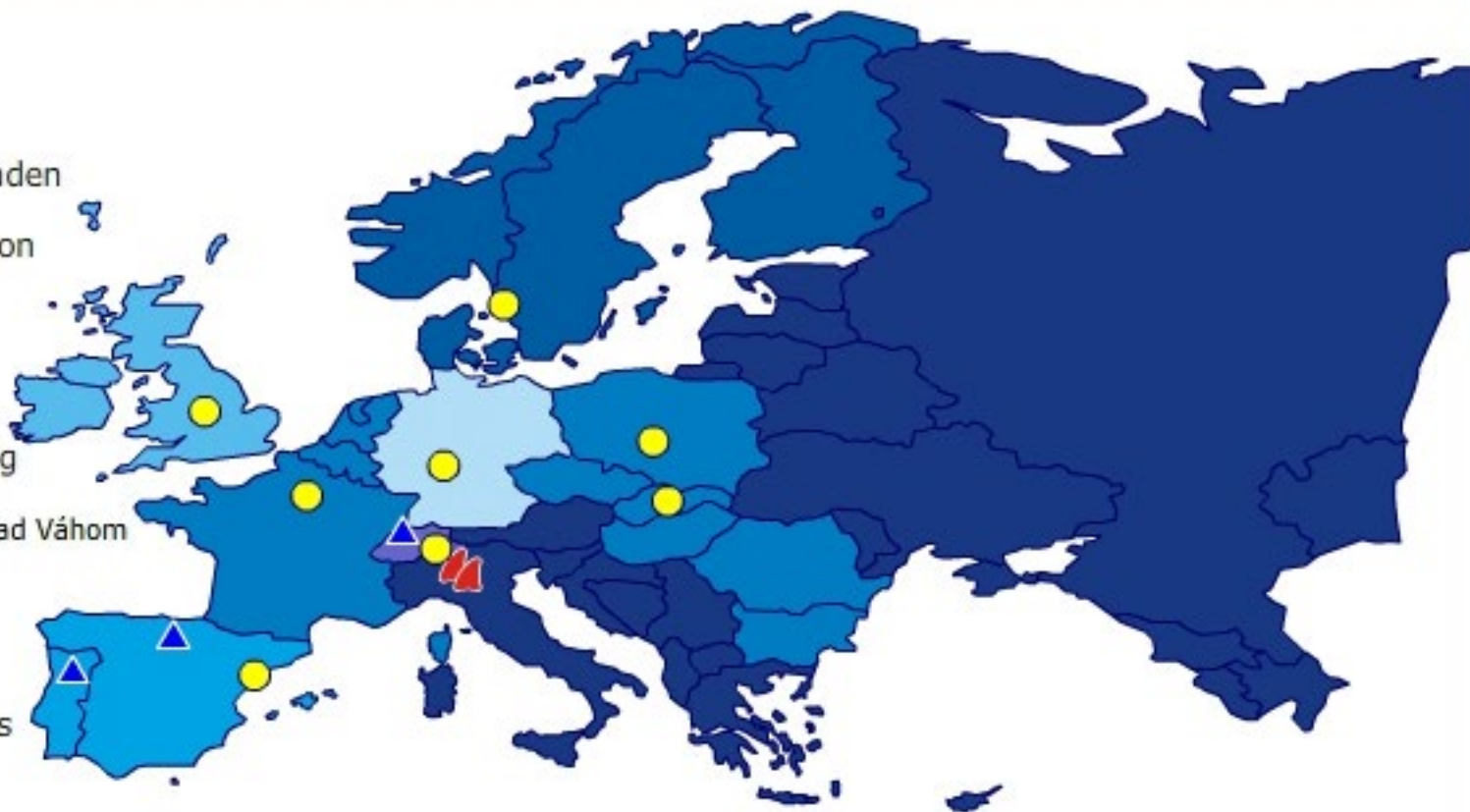
Environment

**SALES NETWORK**

**SALES OFFICES:**

-  LATI ITALIA - Vedano Olona
-  Branch office Germany - Wiesbaden
-  Branch office France - Plaisir/Lyon
-  LATI UK LTD - Manchester
-  LATI Iberica SL - Barcelona
-  Branch office Sweden - Göteborg
-  Branch office Slovakia - Nové Mesto nad Váhom

-  Commercial Offices
-  Production Plants
-  Agents / Authorized Distributors



 LATI Worldwide





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**SALES NETWORK**

**RESELLERS**

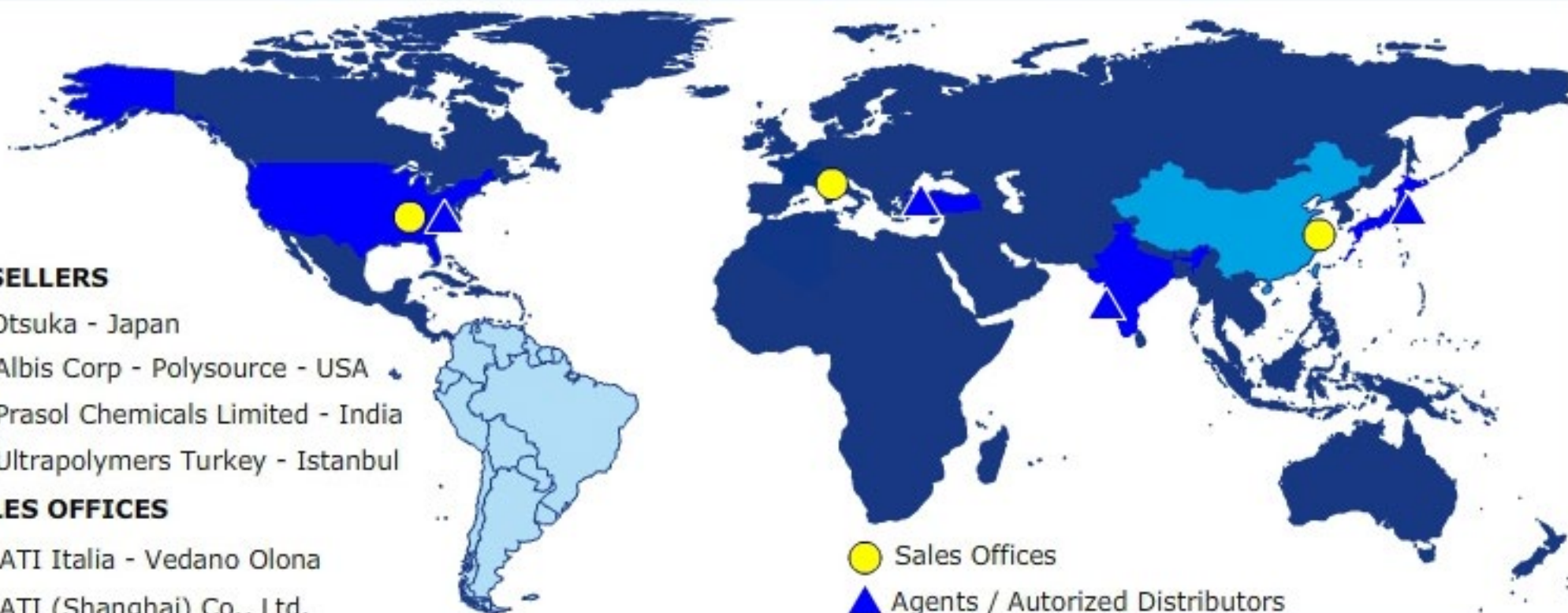
- ▲ Otsuka - Japan
- ▲ Albis Corp - Polysource - USA
- ▲ Prasol Chemicals Limited - India
- ▲ Ultrapolymers Turkey - Istanbul

**SALES OFFICES**

- LATI Italia - Vedano Olona
- LATI (Shanghai) Co., Ltd.

- Sales Offices
- ▲ Agents / Authorized Distributors

▶ LATI Europe







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**CERTIFICATIONS**

UNI EN ISO 14001:2015



CERTIFIED ENVIRONMENTAL MANAGEMENT SYSTEM



CERTIQUALITY IS MEMBER OF CISQ FEDERATION

ISO 9001:2015



CERTIFIED QUALITY MANAGEMENT SYSTEM



CERTIQUALITY IS MEMBER OF CISQ FEDERATION



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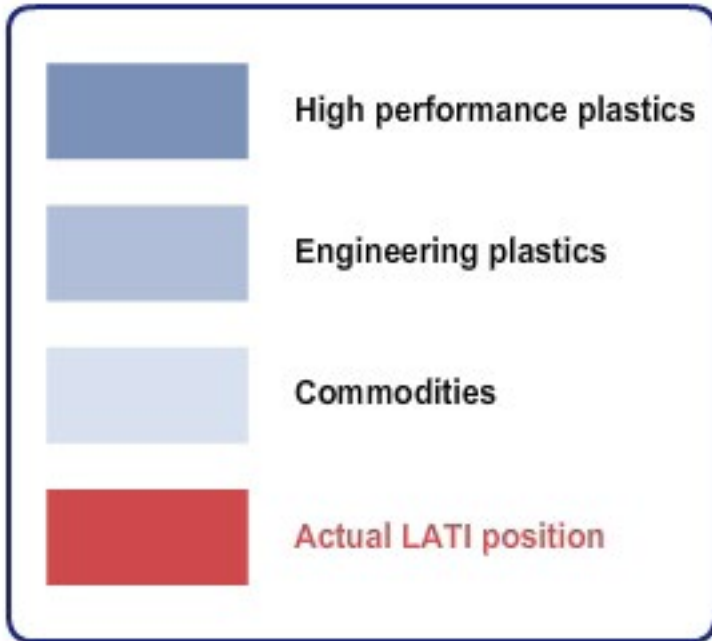


Services



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LATI AND THE POLYMERS

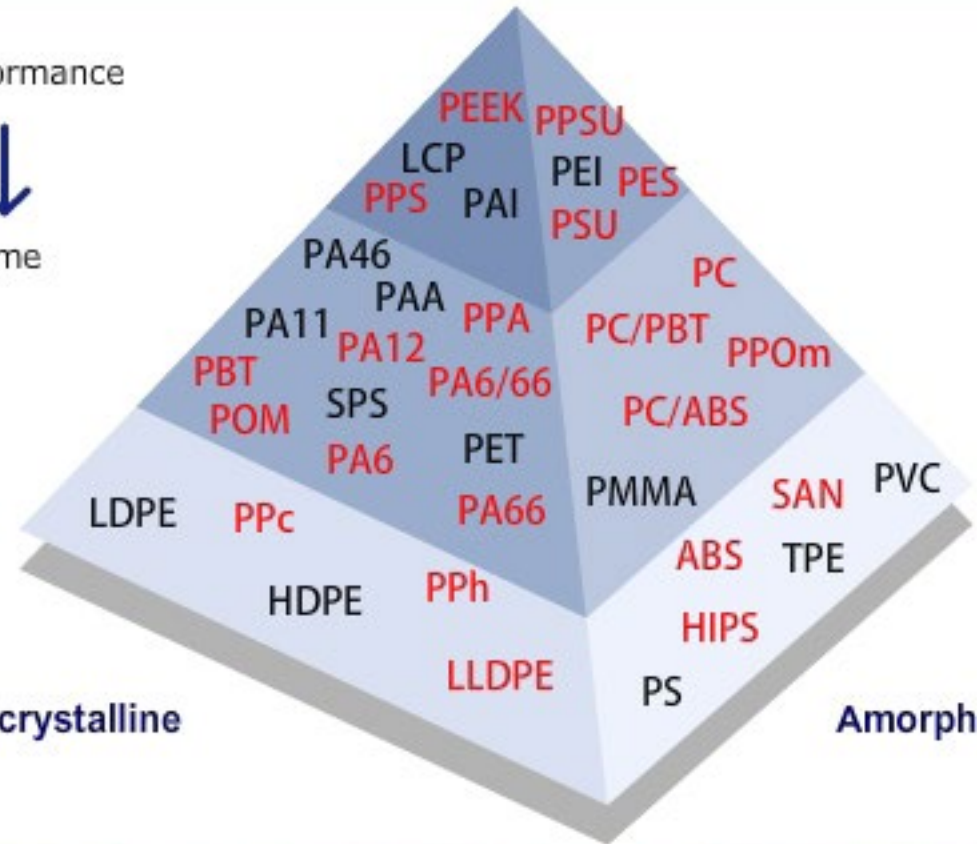


Price/Performance



Semi crystalline

Amorphous







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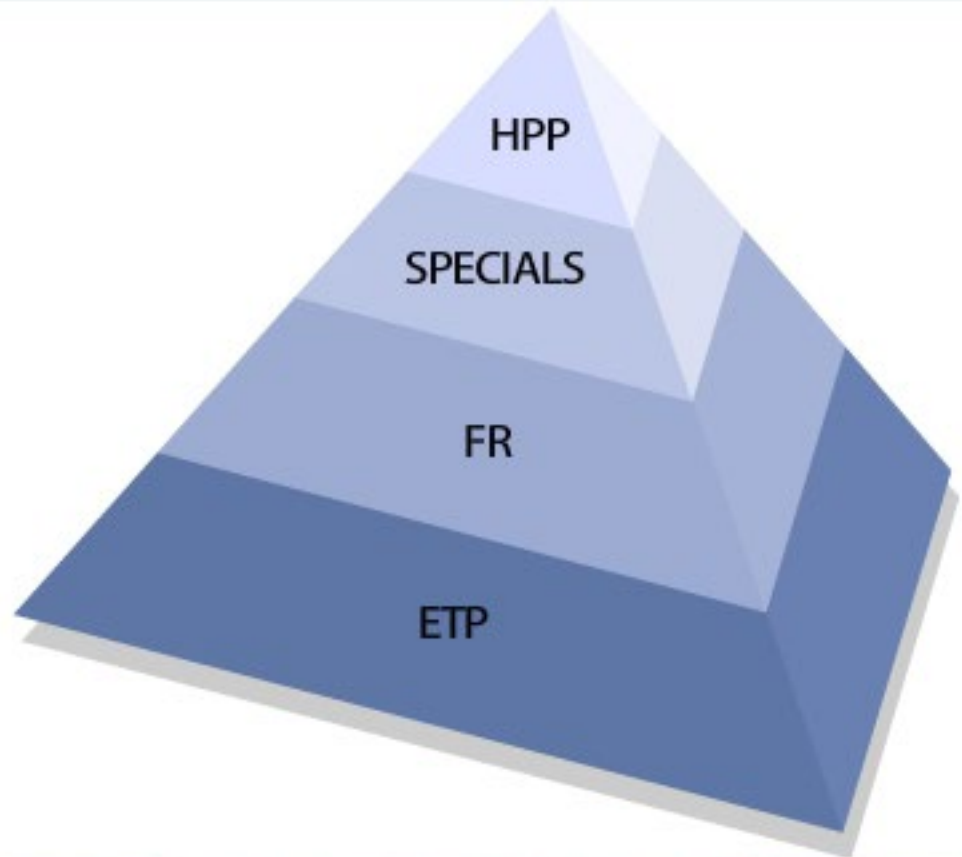
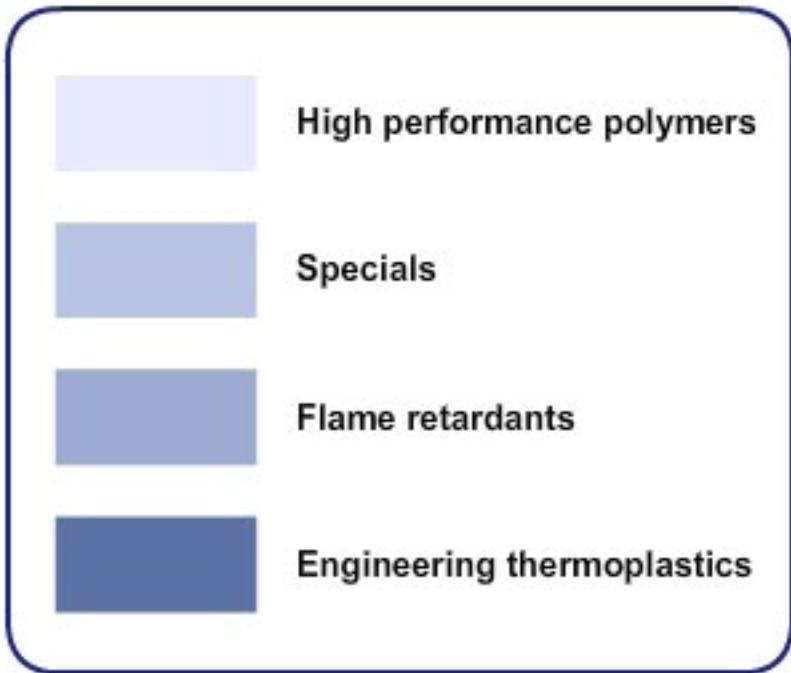


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**LATI AND ITS PRODUCT FAMILIES**







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### **ENGINEERING THERMOPLASTIC COMPOUNDS**

The best compromise between cost and performance

**INVOLVED RESINS:** PP, PBT, ABS, PC, PAs, POM ...

#### **EXAMPLES OF ADDITIVES:**

- Mineral Fillers
- Glass Fibers
- Pigments

#### **FEATURES:**

- low costs and stock material available
- flexibility
- available in a wide range of colors
- easy to mould
- long compounding experience
- reinforced versions with glass fiber content up to 60% (structural grades)



#### ■ **Moulded Part**

- Sailing Keel

#### ■ **Material:** PC K/30







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### **SELF-EXTINGUISHING COMPOUNDS**

Resistance to combustion processes, therefore protection of lives and environment

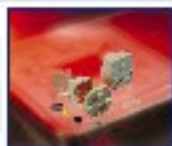
**INVOLVED RESINS:** PAs, PBT, PP, ABS, PPA, PC, PPOm...

#### **EXAMPLES OF ADDITIVES:**

- Red phosphorous;
- Melamine compounds;
- Halogenated compounds;
- Hydroxides.

#### **FEATURES:**

- 90% of self-extinguishing LATI products are UL certified;
- More than 20 grades comply with IEC 60335 regulation;
- Available with or without halogen and red phosphorous bases;
- Available without halogens and red phosphorous.



#### ■ **Moulded Part**

- Timer for small household appliance

■ **Material:** LATAMID 66 H2G/25-VOCT





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### **SELF LUBRICATING COMPOUNDS (LATILUB)**

Products with special features related to wear and friction resistance

**INVOLVED RESINS:** PP, PE, PAs (6, 66, 6/66), POM, PC, PPA, PPS, PSU, PES/PPSU, PEEK

#### **EXAMPLES OF ADDITIVES:**

- Aramid fibers (LATILUB Y);
- Carbon fibers;
- PTFE;
- Molybdenum disulphide, graphite and silicone.



▶ Self-lubricating

▶ Electrical Conductive

▶ Structural

▶ Thermally Conductive

▶ Radiopaque

▶ Controlled Density

#### **FEATURES:**

- Reduction of wear and friction without adding lubricants;
- Low density;
- Low static and dynamic friction coefficient;
- Suitable for materials working against metals or other polymers;
- Good mechanical properties and dimensional stability;
- Self-extinguishing versions available.

#### ■ **Moulded Part**

- Gear-box bushing

■ **Material:** LATILUB 67-ST E21 G/20







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**ELECTRICALLY CONDUCTIVE COMPOUNDS**

**LATISTAT:** antistatic

**LATISHIELD:** electromagnetic shielding

**LATIOHM:** partially conductive/dissipative

**LATIOHM CNT:** carbon nanotubes

**INVOLVED RESINS:** all thermoplastic resins from PP to PEEK

**EXAMPLES OF ADDITIVES:**

- Carbon black
- Carbon fibers
- Steel fibers
- Graphite
- Carbon Nanotubes



▶ Self-lubricating

▶ **Electrical Conductive**

▶ Structural

▶ Thermally Conductive

▶ Radiopaque

▶ Controlled Density

**FEATURES:**

- Wide range of resins to be used;
- Weight reduction compared to metals;
- Controlled and constant resistivity values;
- Resistivity values from 10 to 10<sup>12</sup> Ohm;
- Complying with ATEX 94/9/EC, for use in explosive atmospheres;
- Clean and homogeneous electrical conductivity with LATIOHM CNT version;
- Self-extinguishing versions available.

■ **Moulded Part**

- Diesel fuel filter

■ **Material:** LATIOHM 66-06 PD03 G/20 BLACK







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**STRUCTURAL COMPOUNDS**

Range of products with special characteristics of extreme resistance to mechanical stress and high temperature for metal substitution.  
High aesthetic versions available (LATIGLOSS)

**INVOLVED RESINS:** PAs, PP, PBT, PPA, PPS and PEEK

**EXAMPLES OF ADDITIVES:**

- Glass fibers (between 10% and 60%);
- Carbon fibers (up to 50%).



▶ Self-lubricating

▶ Electrical Conductive

▶ **Structural**

▶ Thermally Conductive

▶ Radiopaque

▶ Controlled Density

**FEATURES:**

- Excellent mechanical properties: elastic modulus > 20 GPa, tensile strength at break > 230 MPa;
- Weight reduction compared to metals;
- Creep and fatigue resistance;
- Easy overmoulding also for parts with difficult geometries;
- Excellent finish surface using LATIGLOSS version;
- Self-extinguishing, self lubricating and UV stabilized versions available.

■ **Moulded part**

- Hook - Nautical sector

■ **Material:** LATAMID 66 H2 G/50







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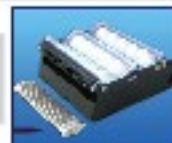
### **THERMALLY CONDUCTIVE COMPOUNDS (LATICONTHER)**

Range of products with special characteristics of thermal conductivity

**INVOLVED RESINS:** PP, PAs, PPS

#### **EXAMPLES OF ADDITIVES:**

- Conductive ceramic fillers



▶ Self-lubricating

▶ Electrical Conductive

▶ Structural

▶ **Thermally Conductive**

▶ Radiopaque

▶ Controlled Density

#### **FEATURES:**

- High thermal conductivity when compared with ordinary polymers (up to 15 W/mK);
- Excellent dimensional stability at temperature;
- Good chemical resistance;
- Low moisture absorption;
- Electrically insulating or conductive versions available;
- Suitable for metal replacement (where this is oversized).

#### ■ **Moulded part**

- Heat sink for LED lamp

■ **Material:** LATICONTHER 83 CP85 Black







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**RADIOPAQUE COMPOUNDS (LATIGRAY)**

Range of products with special characteristics of X ray shielding properties

**INVOLVED RESINS:** PPh, PBT, PAs, PPS and PEEK.

**EXAMPLES OF ADDITIVES:**

- Barium Sulfate ( $BaSO_4$ );
- Bismuth trioxide ( $Bi_2O_3$ );
- Tungsten (W).



▶ Self-lubricating

▶ Electrical Conductive

▶ Structural

▶ Thermally Conductive

▶ **Radiopaque**

▶ Controlled Density

**FEATURES:**

- Suitable for X-ray "contrast": metal components substitution;
- Suitable for X-ray "shielding": lead substitution avoiding toxicity and disposal;
- Good processability through conventional extrusion and moulding techniques;
- Custom selection of the radiation absorption level in compliance with the project requirements;
- Suitable additives used in order to maintain mechanical and physical properties;
- Colored versions available.

■ **Moulded Part:**

- Drilling security system (dental sector)

■ **Material:** LATIGRAY 75-01 CX/45







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### **DENSITY CONTROLLED COMPOUNDS (LATIMASS)**

Range of products with special characteristics of density control



**INVOLVED RESINS:** PP, PAs, PBT...

#### **EXAMPLES OF ADDITIVES:**

1. Low density: hollow beads, blowing agents;
2. High density: ceramic powders, metallic fillers (steel, bronze, copper, brass, tungsten).

▶ Self-lubricating

▶ Electrical Conductive

▶ Structural

▶ Thermally Conductive

▶ Radiopaque

▶ **Controlled Density**

#### **FEATURES:**

- Variable density between 0,8 and 9,5 g/cm<sup>3</sup>
- Good surface finish similar to metal
- Good dimensional stability
- Easy and clean processing
- Flexibility in design and engineering solutions
- Easy overmoulding







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**HIGH PERFORMANCE THERMOPLASTIC COMPOUNDS**

Intrinsically performance for extreme applications without any compromise

**INVOLVED RESINS:** PEEK, LCP, PPS, PSU, PPSU, PES, PPA

**EXAMPLES OF ADDITIVES:**

- Wide range of additives to be used in conformity with projects and applications



**FEATURES:**

- Very good for metal substitution, but better mouldability (all HPP resins)
- Properties maintained even at high temperature
- High chemical resistance and/or to radiation
- High wear resistance
- High creep resistance
- Homologation for particular conditions of usage

■ **Moulded Part**

- Special knife for textile machine

■ **Material:** LARTON G/40 BLACK







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**RESEARCH & DEVELOPMENT: TWO DIFFERENT APPROACH SYSTEMS**

**"PRO-ACTIVE APPROACH"**

**TREND**



**MARKET**

**"REACTIVE APPROACH"**

**MARKET**



**TREND**

**Innovation for LATI is synonym of:**

▶ Product Innovation

▶ Process Innovation





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**PRODUCT INNOVATION**

**Development of solutions complying with International Regulations and Certifications:**

- Food and water contact suitability (FDA, NSF, 2002/72/EC);
- Guidelines of E&E sector (WEEE, RoHS, ATEX);
- Automotive (ELV, IMDS);
- Various (REACH).

**R&D of self-extinguishing compounds in E&E and transport sectors:**

- 90% of LATI "flame retardant" compounds are UL certified;
- Constant and even growing development of Flame Retardant formulations complying with International Regulations.

**Research and Development of brand new "special materials":**

- More than 200 new special products developed during the last 3 years;
- Innovative solutions for metal replacement.

**Innovation for LATI is synonym of:**

▶ **Product Innovation**

▶ **Process Innovation**







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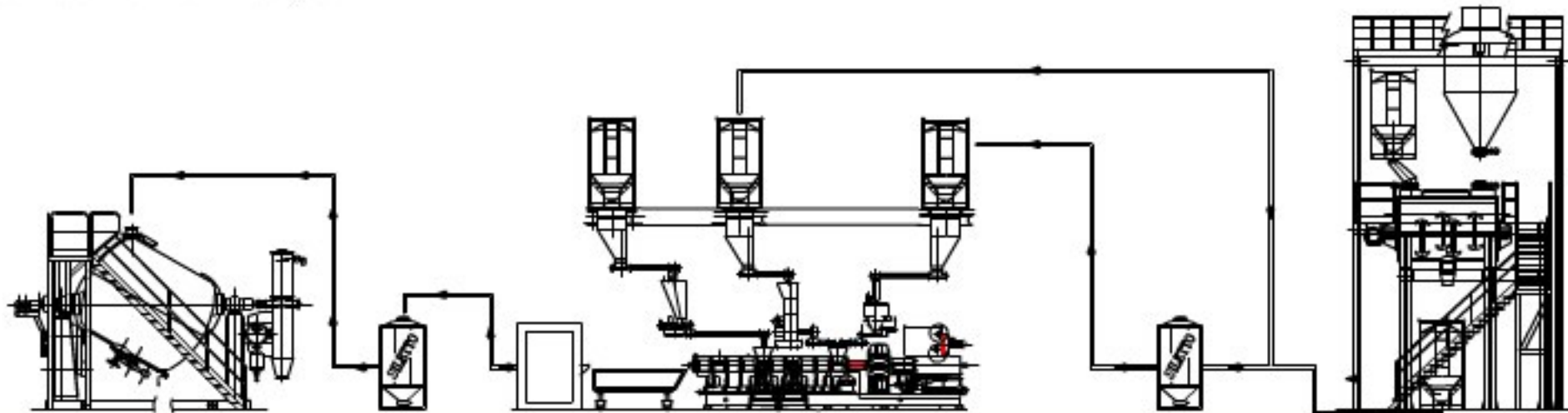
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## PROCESS INNOVATION

- Identification of the most suitable production technologies;
- Configuration of the most suitable processing plant in accordance with the products development;
- Identification of the process parameters in order to optimize the product characteristics and production costs;
- Patents of new technologies.



**Innovation for LATI is synonym of:**

▶ Product Innovation

▶ **Process Innovation**





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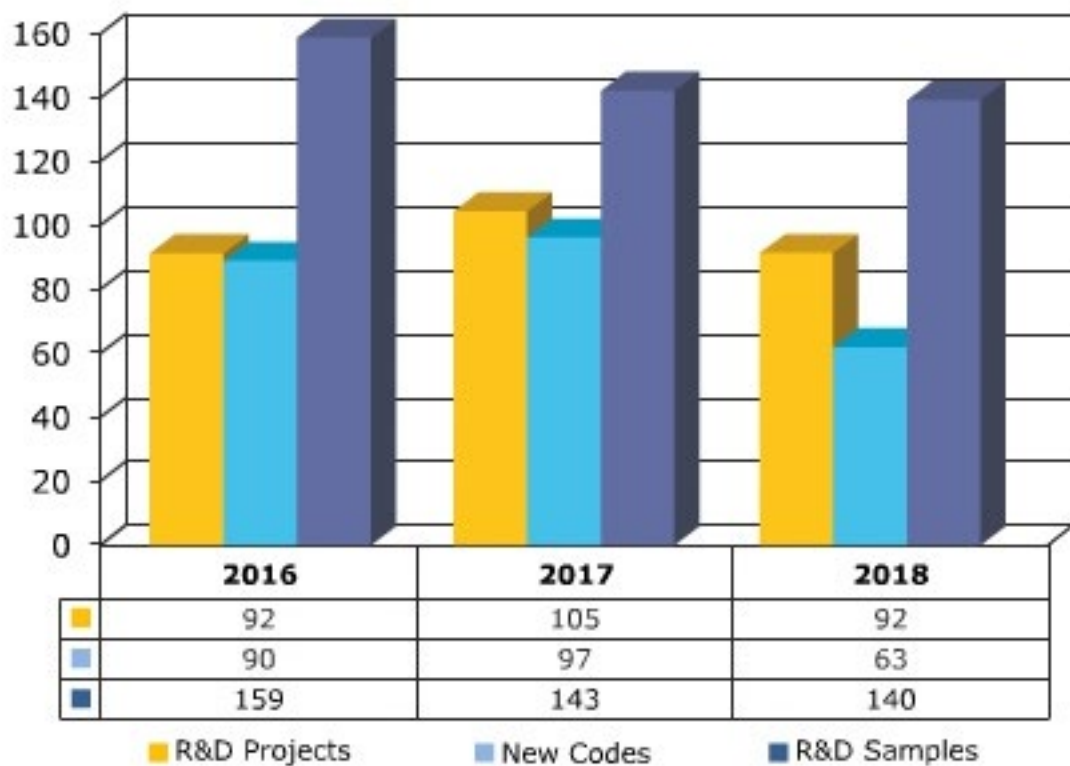


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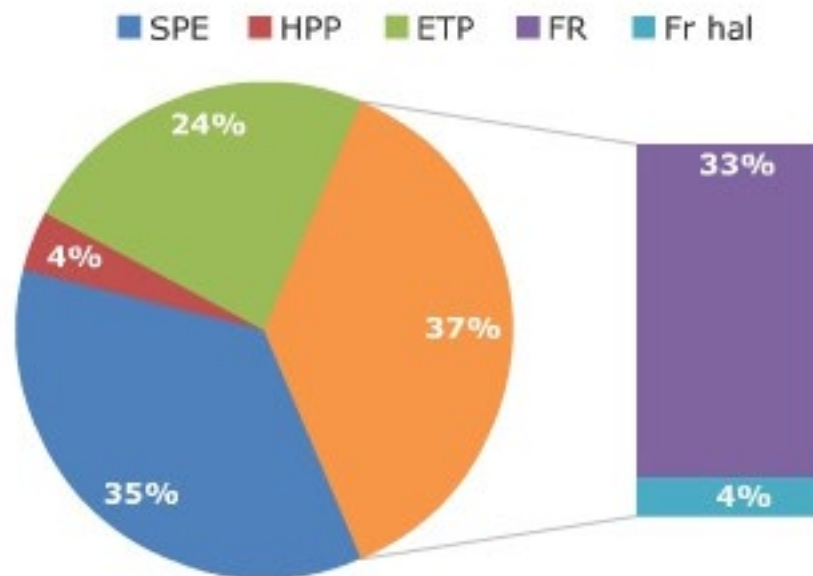


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**NUMBERS OF THE INNOVATION**



**New materials for category 2018**







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**CUSTOMER ASSISTANCE AND PROJECTS DEVELOPMENT**



Customers Assistance is a synonym for pre and post sales support

**PRE-SALES ACTIVITY**

- Technical support for the best material choice;
- Structural and Fluid-dynamic analysis (Moldflow)
- Thermal and Fluid-dynamic analysis (Moldflow)

**POST-SALES ACTIVITY**

- Support during the startup by the customer directly at the moulding machine:
  1. Working cycles;
  2. Mould, runners and gates optimization;
  3. Set-up of the injection parameters;
  4. Adjustment of working conditions of the machine.





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▶ Structural and Fluid-dynamic analysis (Moldflow)

▶ Thermal and Fluid-dynamic analysis (Moldflow)

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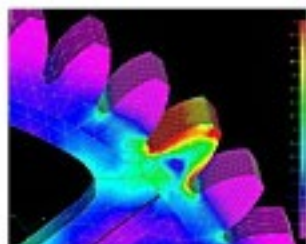
2D or 3D **Design** given by the customer



**Geometrical modeling:** in order to get a complete tridimensional pattern. A mesh is realized thanks to the finit elements calculation



**Choice of the material:** activity coordinated with R&D



**Structural Analysis:** to evaluate non-linearities in the stress-strain relationship effect due to temperature, fatigue and creep



**Fluid-dynamic Analysis:** simulations of injection and packing pressure, warpages, shrinkages and fibers orientation



Finished Article





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Environment

▶ Structural and Fluid-dynamic analysis (Moldflow)

▶ Thermal and Fluid-dynamic analysis (Moldflow)

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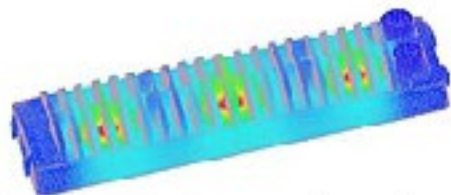
2D or 3D Design supplied by the customer



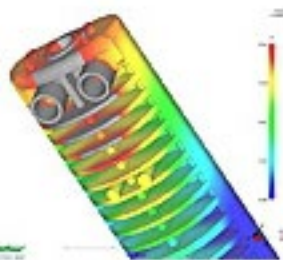
**Geometrical modeling:** in order to get a complete tridimensional pattern. A mesh is realized thanks to the finit elements calculation



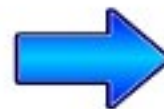
**Choice of the ideal material:** activity coordinated with R&D



**Thermal Analysis:** to study conductivity phenomena and heat diffusivity into the article made with a conductive polymer.



**Fluid-dynamic Analysis:** simulations of injection and packing pressure, warpages, shrinkages, and fibers orientation



Finished Article





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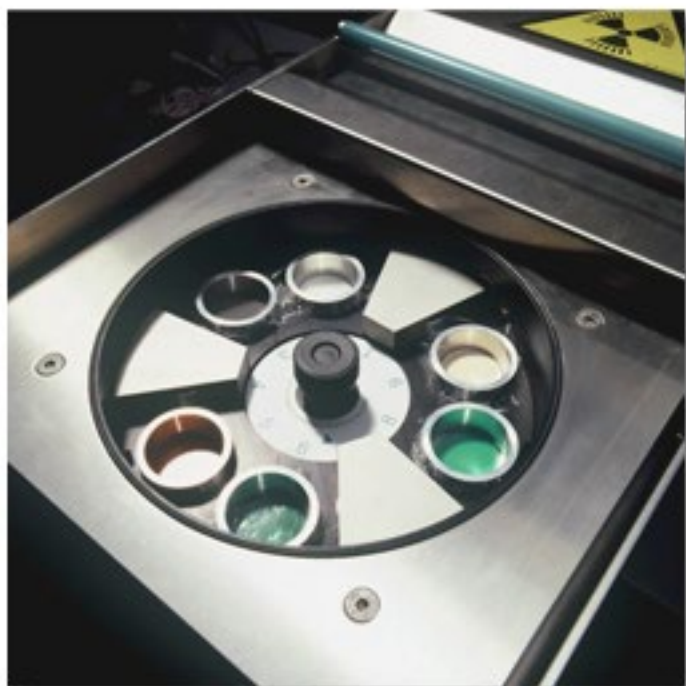


Services



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**LABORATORY**



**Type of tests performed:**

- Analytical
- Mechanical/Rheological
- Ageing
- Laser Marking
- Physical, Thermal, Electrical
- Self-Extinguishing
- Colorimetric

The laboratory is also equipped with:

- **an extrusion department** able to produce experimental batches
- **a molding department** able to produce specimens suitable for material testing
- **a climatic chamber** where samples are conditioned before testing.







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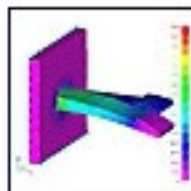
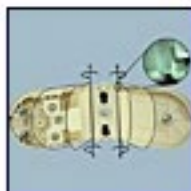
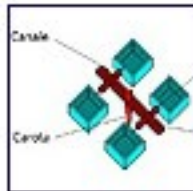
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**TECHNICAL COURSES**



**General proposed topics:**

- Introduction to thermoplastic materials and compounds;
- Introduction to engineering polymeric materials and design;
- Detailed study of the moulding process;
- Analysis of differential shrinkage and warpage phenomena;
- Special, high-performance, self-extinguishing compounds.







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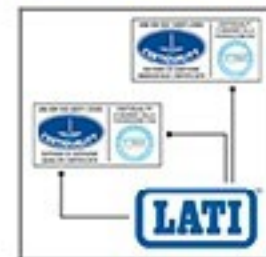
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ENVIRONMENT AND SAFETY

The continuous evolution of the company regarding **sustainable development** is mandatory for LATI.

Guidelines:

- **UNI EN ISO 14001 certification achieved** in 1995;
- **LATI carefully monitor the impact of its activity (LCA studies,...);**
- **Careful choice of suitable raw materials and production phases** which pay attention to all ecological aspects;
- **Attention to the policies regarding the management of energy and wastes;**
- **Broadmindedness and transparency** towards the stakeholders: LATI staff, customers and territorial communities.



LATI Industria Termoplastici S.p.A.

Vedano Olona - Italy



LATI Industria Termoplastici S.p.A.

Gornate Olona - Italy







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**ECO-SUSTAINABILITY**

LATI is sensitive to **eco-sustainable** projects.

**Main developed support to eco-sustainability:**

- raw material check and evaluation;
- immediate substitution of raw materials not complying with the environmental policy;
- development of compounds with low environmental impact;
- very accurate control of the process and of the finished product.

**To produce thermoplastic compounds taking care of the environmental system means:**

- production of low-emission smoke self-extinguishing products, free of halogens, antimony and phosphorous.
- substitution of metal and weight reduction of the articles;
- promotion of energy saving (i.e. automotive sector);
- coloring free of heavy metals;
- creating recyclable materials;
- investigating solutions that offer a long life expectancy.

ECOLABEL



WHITE SWAN



BLAUE ANGEL



TCO

