



Specialty Plasticizer

Oxofine™ TOTM

Flexible solutions
for your business

Oxoplast™
flexible opportunities



**GRUPA
azoty**

Product Characteristics

Oxofine™ TOTM is produced using our high quality 2-EH and trimellitic anhydride. It is manufactured according to a proven technology which guarantees its highest quality and production stability.

Oxofine™ TOTM can be used as primary or functional plasticizer in combination with other plasticizers. It has a positive effect on finished product properties and its manufacturing process.



Oxofine™ TOTM:

- Low migration and volatility
- Enhanced resistance to extraction
- High temperature resistance
- Compatible with Oxoviflex™ and other plasticizers



Applications

Oxofine™ TOTM is primarily recommended for applications benefiting from its high-quality features and technical performance, such as:



wires & cables



automotive



medical devices

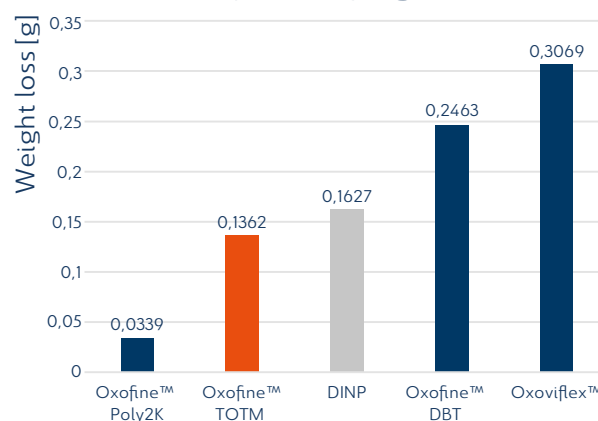
Application tests

Our products undergo thorough application tests in our advanced and fully equipped **Laboratory of Research and Innovation Department**, in which we test plasticizer performance in polymer processing.

Migration

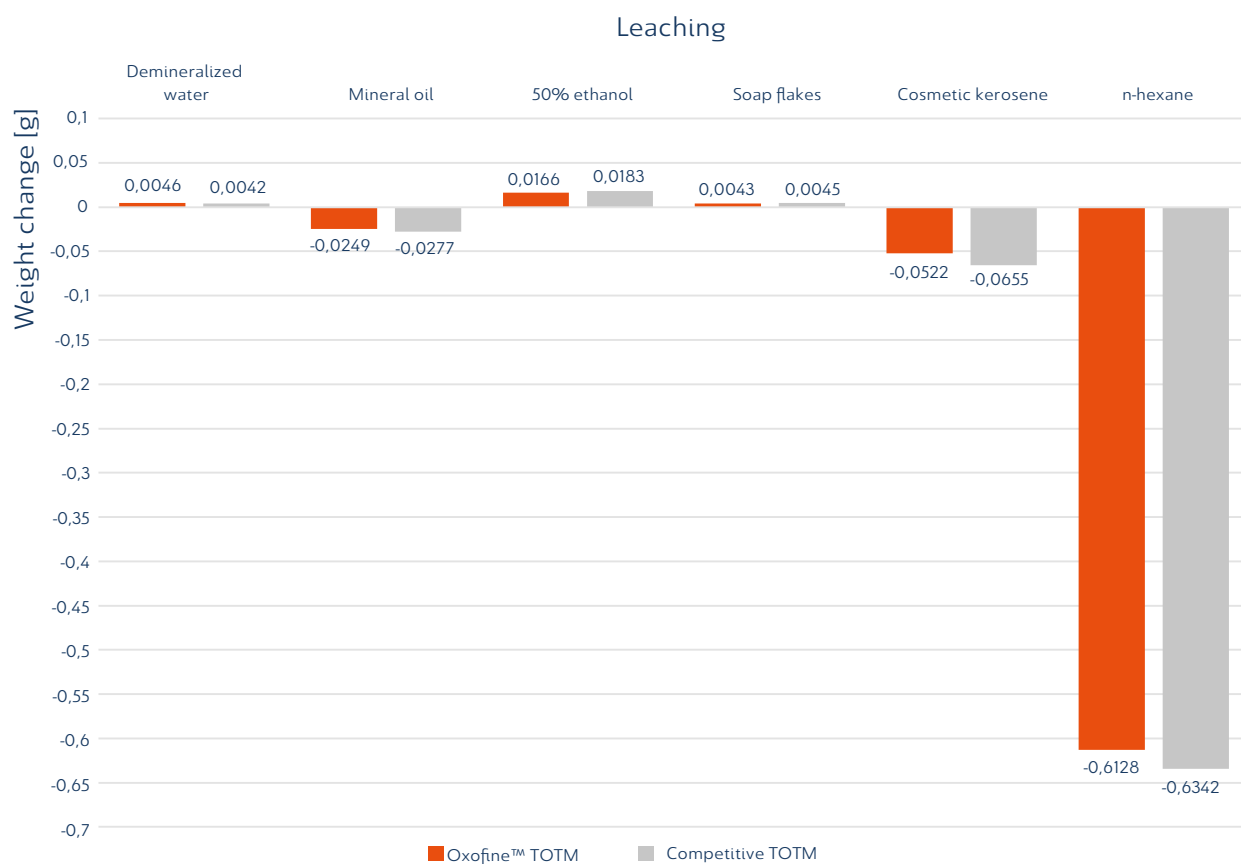
Oxofine™ TOTM has extremely low migration, thus it enhances durability and usability of the finished product. Products manufactured with Oxofine™ TOTM maintain their working parameters over extensive period time. This feature distinguishes Oxofine™ TOTM from other monometric plasticizers.

Comparison of migration

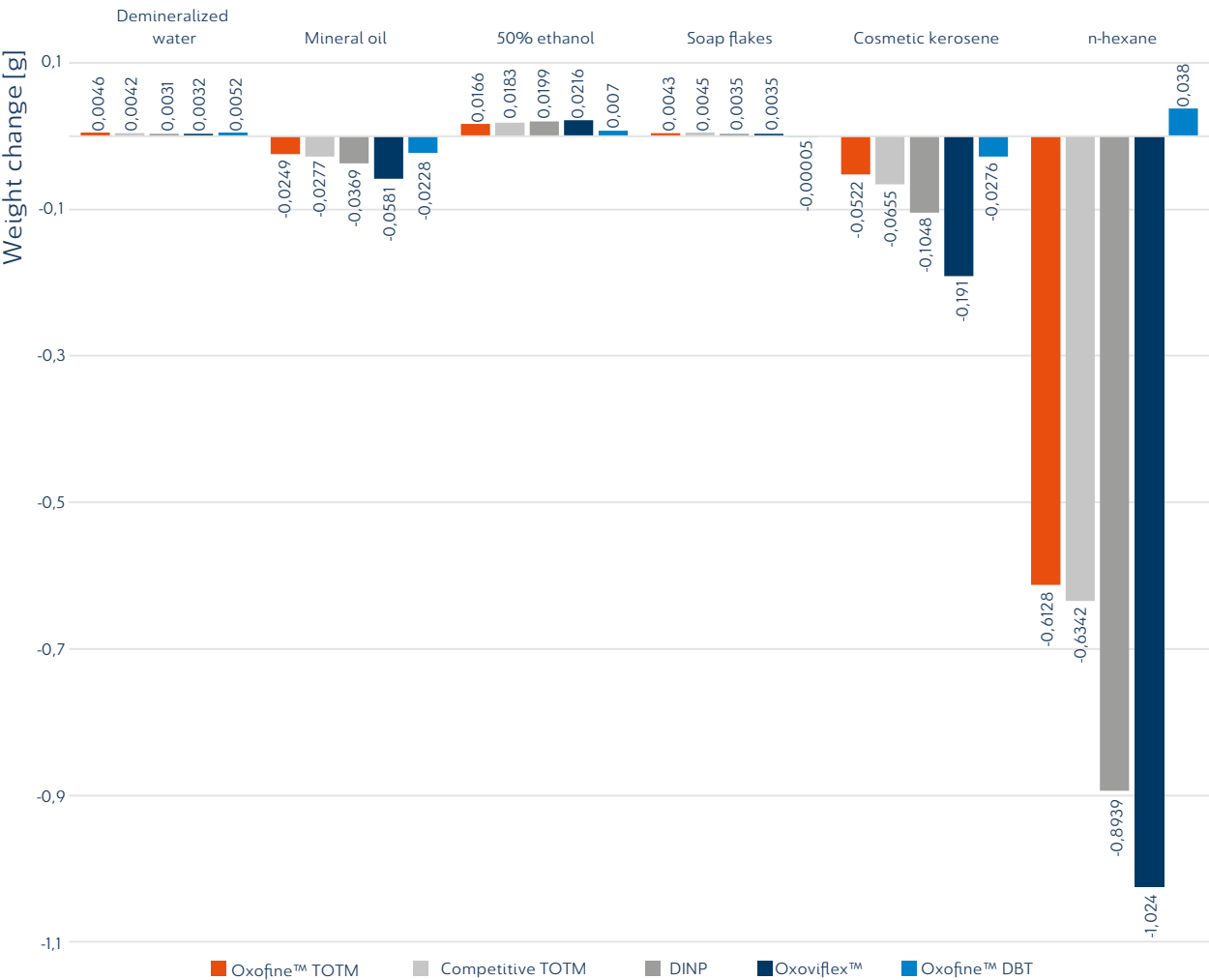


Chemical resistance

Oxofine™ TOTM has high resistance to chemical substances compared to other monometric plasticizers and other marketably available TOTMs.



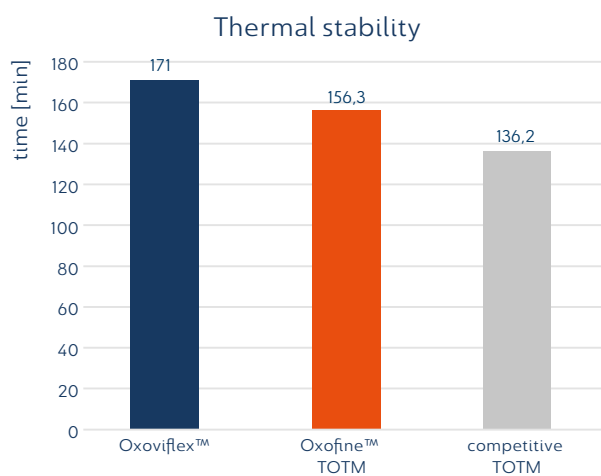
Leaching
Oxofine™ TOTM compared to other monomeric plasticizers



Thermal stability

Oxofine™ TOTM provides high temperature resistance. It is a runner-up to Oxoviflex™ - the most thermally stable plasticizer on the market.

High thermal stability translates to superior temperature resistance in PVC processing and finished product's working environment.



Specification

Physical and chemical proprieties

| Item | Parameter | | Value | Unit | Test method | Foreign equivalent |
|------|---|--------------|----------------|------------|---|-------------------------|
| 1 | Colour | max. | 100 | [Pt-Co] | PN-C-04534-01:1981 PN-EN ISO 6271:2016-01 | ISO 2211 EN ISO 6271 |
| 2 | Flash point | min. | 240 | [°C] | PN-EN ISO 2592:2017-10 | ISO 2592 |
| 3 | Water | max. | 0.1 | [% m/m] | PN ISO 760:2001 PN-EN ISO 12937:2005 | ISO 760 EN ISO 12937 |
| 4 | Tris(2-ethylhexyl) trimellitate content | min. | 96.0 | [%] | Internal method of Grupa Azoty ZAK S.A. (GC, % by area) | GC (% by area) |
| 5 | Density in 20°C | min. max. | 0.985 0.990 | [g/cm³] | PN-EN ISO 12185:2002 | ISO 12185 |
| 6 | Acid value | max. | 0.5 | [mg KOH/g] | PN-C-89401:1988 ASTM D1045-14 | ASTM D1045-14 |
| 7 | Volatile organic compounds (VOC) | max. | 0.2 | [% m/m] | PN-EN ISO 11890-2:2020-12 | ISO 11890-2:2020 |

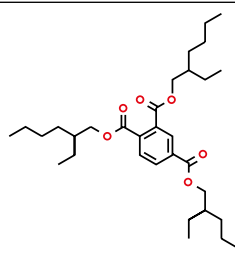
Regulatory information

Oxofine™ TOTM has been registered in accordance with Regulation (EC) No. 1907/2006 (REACH). It is not subject to authorization, legal

and application restrictions. Due to its safe profile, it does not have the CLP classification.

| | |
|---|---|
| Commercial name: | Oxofine™ TOTM |
| Chemical name: | Tris(2-ethylhexyl) benzene-1,2,4-tricarboxylate |
| CN: | 2917 39 95 |
| CAS: | 3319-31-1 |
| Polish Classification of Goods and Services (PCGS): | 20.14.34.0 |

Structural formula:



Sales and logistics:

We operate globally

IN-TIME deliveries in:

- IBC's
- drums
- road tankers
- ISO tanks
- flexitanks
- rail tankers

Proven logistics:

- land
- maritime
- intermodal



Grupa Azoty ZAK S.A.



Customer support and product development

We provide technical and application support for all our plasticizers. We have well-qualified technical staff and the **Laboratory of Research and Innovation Department** equipped in the top quality and technically advanced equipped with the top, in which we conduct:

- Processing tests for:
 - DRY BLENDS processing parameters
 - Moulding parameters
- Laboratory tests:
 - Plasticization time
 - Shore Hardness
 - Strength parameters (tensile strength, elongation at break)
 - Thermal stability
 - Migration
 - Chemical resistance
 - GMC analysis
- Developing optimum processing formulations for industrial applications

We have also launched a semi-scale plasticizer (ester) production plant, on which our experienced technology engineers develop products with specific properties tailored to the individual needs and optimise the production technology.

The semi-scale enables production and synthesis of plasticizers and esters with specific properties in the tank and ion-exchange reactors.

In addition, we can conduct following processes:

- neutralization
- washing
- rectification
- drying with steam and nitrogen under reduced pressure.

We also cooperate with the scientific and research institutions, knowledge and experience of which supports our in-house competences and promotes development.



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