ERIKS

Solutions in Plastics

# PET Datasheet

## Sheet Properties

- Excellent transparency and brilliance.
- **Outstanding chemical resistance.**
- Suitable for food contact applications. **Complies with FDA and BGA Regulations.**
- High impact and breakage resistance.
- Thermoformable. No pre-drying required.
- Excellent fire resistance. Low non-toxic smoke generation.
- Recyclable. Environment friendly. Burns without releasing dioxins into the atmosphere, or toxic substances which may contaminate landfills.
- Reduces sound transmission.

## Thermal Stability

- Articles manufactured with this product should not be exposed to continuous use at over 65°C, according to the application.

## Weathering

- The ultraviolet component in solar radiation causes most plastics to degrade. This degradation depends on the exposure conditions, i.e. the actual duration of the exposure, the angle of the sheet with respect to the incidence of the solar radiation, and the temperature, humidity and intensity of the radiation (geographical coordinates). Degradation is apparent by progressive yellowing, a decrease in light transmission and a loss of mechanical properties.
- PET sheet is not protected against the effects of weathering, though the material itself does possess a certain resistance to weathering conditions and may thus be used for outdoor applications in which the sheet is not permanently exposed to such radiation.
- For external applications where the sheet is subject to ultraviolet light, a stabilised product, PET-UV is recommended. PET-UV is protected on both sides of the sheet and has a limited warranty for 10 years.
- In external applications, both protection films must be removed immediately because, if they are exposed to sunlight, they can be permanently bonded to the sheet.

## Chemical resistance

- PET is generally resistant to most acids, alcohols and salts as well as plasticizers.
- PET is also resistant to hydrocarbons such as xylene, mineral oil and petrol.
- The resistance to aliphatic hydrocarbons is limited.
- Similarly, PET is also resistant to chemical attack by acid rain, diesel exhaust fumes and
- salinated air. Aromatic compounds show a variety of reactions.

## Food contact and medical use

- PET complies with the requirements of the FDA (Food and Drug Administration, USA) and the BGA (Bundesgesundheitsamt, Germany) standards for contact with foodstuffs.
- PET is odourless and neutral in taste.
- PET is suitable for use with foodstuffs and medical applications.
- PET can be sterilised with gamma rays or ethylene oxide.

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## Applications

- Security glazing
- Signs
- Machinery protection
- Articles for food and health use
- Vending machines
- Point of Purchase displays
- Street furniture (vandal-proof)
- Building parts

## Material Characteristics

| | METHOD | UNITS | VALUE |
|---|---|---|---|
| **PHYSICAL** | | | |
| Density | ISO 1183 | $g.cm^{-3}$ | 1,34 |
| **MECHANICAL** | | | |
| Tensile Strength @ Yield | ISO 527 | Mpa | 59 |
| Tensile Strength @ Break | ISO 527 | Mpa | No break |
| Elongation @ Break | ISO 527 | % | >200 |
| Tensile Modulus of Elasticity | ISO 527 | Mpa | 2420 |
| Flexural Strength | ISO 178 | Mpa | 86 |
| Charpy Notched Impact Strength | ISO 179 | $kJ.m^{-2}$ | (*) |
| Charpy Unnotched | ISO 179 | $kJ.m^{-2}$ | No break |
| Rockwell Hardness M / R scale | | | (*) / 111 |
| Ball Indentation | ISO 2039 | Mpa | 117 |
| **OPTICAL** | | | |
| Light Transmission | | % | 89* |
| Refractive Index | | | 1,576 |
| **THERMAL** | | | |
| Max. service temperature | | °C | 60 |
| Vicat Softening Point - 10N | ISO 306 | °C | 79 |
| Vicat Softening Point - 50N | ISO 306 | °C | 75 |
| HDT A @ 1.8 Mpa | ISO 75-1,2 | °C | 69 |
| HDT B @ 0.45 Mpa | ISO 75-1,2 | °C | 73 |
| Coefficient of Linear Thermal Expansion x10-5 | | $x10^{-5} . °C^{-1}$ | <6 |

If you need further information about our sheet, please contact our Technical Department.

*Not available

| CHEMICAL RESISTANCE | BEHAVIOUR | | |
|---|---|---|---|
| | GOOD | LIMITED | POOR |
| Mineral Oil (*) | X | | |
| Vegetable Oil (*) | X | | |
| Acetone (*) | | | X |
| Acetic Acid (*) | | X | |
| Water | X | | |
| Turpentine (*) | X | | |
| Ammonia | | | X |
| Detergents (*) | X | | |
| Ethanol (*) | X | | |
| Petrol (*) | X | | |
| Glycerine | X | | |
| Methanol | | X | |
| Toluene (*) | | | X |

(*)Test conditions: Total immersion during 1 year at a temperature of 23°.

**FIRE PERFORMANCE**

| COUNTRY | STANDARD | CLASSIFICATION |
|---|---|---|
| UK | BS 476: Part 7 | 1Y |
| GERMANY | DIN 4102-1 | B1 |
| FRANCE | NPF 92-507 | M2 |
| ITALY | UNI 9177 | Class 1 |