

1. Producer / supplier

Quadrant PHS Deutschland GmbH
Postfach 1264
D – 48685 Vreden
Tel.: +49(0)25 64–3 01–0
Fax: +49(0)25 64–3 01–2 55

2. Product description

Commercial product name: TIVAR® TECH

These products are 'articles' according to the Regulation (EC) No 1907/2006 (REACH).

Material characterization: Ultra high molecular weight polyethylene + molybdenum disulphide [PE-UHMW-MD(MoS₂)]

3. Product characteristics

Form: semi-finished products (plates) / finished parts machined from semi-finished products

Colour: grey-black

Odour: odourless

Density: 0.935 g/cm³

Melting temperature: 135 °C

Glass transition temperature: -
Values for this property are only given here for amorphous materials and not for semi-crystalline ones.

Thermal decomposition: > 300 °C

Self ignition temperature: > 330 °C

Solubility in water: insoluble

Test methods

ISO 1183-1

ISO 11357-1/-3

ISO 11357-1/-2

ASTM D 1929

4. Handling and storage

Machining: During machining of the semi-finished products, evacuate swarf to prevent slipping or tripping hazard and observe the maximum allowable concentration of dust levels on the workplace which apply in your country. Wear safety goggles during machining.

Storage: The products shall be stored indoors in a normal environment (air at 10 - 30°C / 30 - 70% RH) and kept away from any source of degradation such as sunlight, UV-lamps, chemicals (direct or indirect contact), ionising radiation, flames, etc. Dimensional changes (camber, warpage, shrinkage ...) of the products as well as slight colour shifts of the external surfaces can occur with time. The latter does generally not pose a problem in case of semi-finished products since the surface-layer is mostly removed anyway upon machining them into finished parts.

Safety measures: Standard industrial safety recommendations shall be observed. Temperatures above the melting temperature shall be avoided.

Please also note the disclaimer on page 3 of this document.

5. Fire-fighting measures

Suitable extinguishing media: Water, foam, dry chemical, CO₂. Adapted to the nature and extend of fire.

Hazardous decomposition products:

The main products formed in case of overheating and combustion are carbon monoxide and carbon dioxide. Formation of further hazardous decomposition products depends upon the fire conditions and can not be excluded.

Special protective equipment: Firemen should wear self-contained breathing apparatus and protective clothing to prevent contact with skin and/or eyes. If exposed to combustion fumes in a high concentration, bring the victim into fresh air. If molten material contacts skin, cool rapidly with cold water and obtain medical attention for removal of adhering material and treatment of the burn.

6. Disposal considerations

According to the 'European Waste Catalogue and Hazardous Waste List', uncontaminated waste from the products is not classified as hazardous. The following six-digit codes can be used:

- 07 02 13 waste plastic from the manufacture, formulation, supply and use of plastics
- 12 01 05 plastic shavings and turnings
- 16 01 19 plastic, from end-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance
- 17 02 03 plastic construction and demolition wastes
- 20 01 39 plastics from municipal wastes (household waste and similar commercial, industrial and institutional wastes)

Waste disposal:

When recycling is not feasible, waste disposal by incineration or landfill can be applied. Disposal methods shall conform to local or other government regulations.
The products do not contain cadmium pigments or cadmium stabilisers. They are not biologically degradable, but based on the present state of knowledge no negative effects on the environment may be anticipated.

7. Marking and transport information

Classification and labelling: Hazard warning labelling in accordance with relevant EC-Directives is not required.

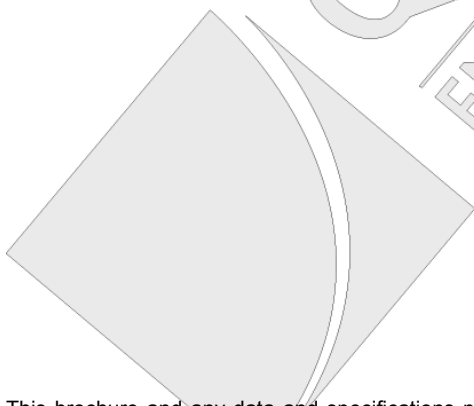
International transport regulations:
Not applicable

8. Other information

Consult the Quadrant website for the latest information on the Quadrant products (product data sheets, delivery programme, machining instructions, chemical resistance, regulatory information ...) as well as for our statements concerning the European Regulation (EC) No 1907/2006 (REACH).

TIVAR® is a registered trademark of the Quadrant Group.

Please also note the disclaimer on page 3 of this document.



QUADRANT
ENGINEERING PLASTIC PRODUCTS

This brochure and any data and specifications presented on our website shall provide promotional and general information about the Engineering Plastic Products (the "Products") manufactured and offered by Quadrant Engineering Plastic Products ("Quadrant") and shall serve as a preliminary guide. All data and descriptions relating to the Products are of an indicative nature only. Neither this brochure nor any data and specifications presented on our website shall create or be implied to create any legal or contractual obligation.

Any illustration of the possible fields of application of the Products shall merely demonstrate the potential of these Products, but any such description does not constitute any kind of covenant whatsoever. Irrespective of any tests that Quadrant may have carried out with respect to any Product, Quadrant does not possess expertise in evaluating the suitability of its materials or Products for use in specific applications or products manufactured or offered by the customer respectively. The choice of the most suitable plastics material depends on available chemical resistance data and practical experience, but often preliminary testing of the finished plastics part under actual service conditions (right chemical, concentration, temperature and contact time, as well as other conditions) is required to assess its final suitability for the given application. It thus re-mains the customer's sole responsibility to test and assess the suitability and compatibility of Quadrant's Products for its intended applications, processes and uses, and to choose those Products which according to its assessment meet the requirements applicable to the specific use of the finished product. The customer undertakes all liability in respect of the application, processing or use of the aforementioned information or product, or any consequence thereof, and shall verify its quality and other properties.