

**Ultradur® S 4090 G2**  
(PBT+ASA+PET)-GF10

BASF

Low-warpage injection molding grade with 10 % glass fibres for technical parts, for which dimensional stability is very important (e.g.housings, plug-and-socket connectors).

Abbreviated designation according to ISO 1043: PBT ASA PET GF10

| Rheological properties     | Value | Unit      | Test Standard |
|----------------------------|-------|-----------|---------------|
| <b>ISO Data</b>            |       |           |               |
| Melt volume-flow rate, MVR | 20    | cm³/10min | ISO 1133      |
| Temperature                | 275   | °C        | -             |
| Load                       | 2.16  | kg        | -             |

| Mechanical Properties                   | Value | Unit  | Test Standard |
|-----------------------------------------|-------|-------|---------------|
| <b>ISO Data</b>                         |       |       |               |
| Tensile Modulus                         | 4500  | MPa   | ISO 527       |
| Stress at Break                         | 75    | MPa   | ISO 527       |
| Strain at Break                         | 2.9   | %     | ISO 527       |
| Tensile Creep Modulus, 1h               | 3500  | MPa   | ISO 899-1     |
| Tensile Creep Modulus, 1000h            | 3300  | MPa   | ISO 899-1     |
| Impact Strength (Charpy), +23°C         | 37    | kJ/m² | ISO 179/1eU   |
| Impact Strength (Charpy), -30°C         | 24    | kJ/m² | ISO 179/1eU   |
| Notched Impact Strength (Charpy), +23°C | 4     | kJ/m² | ISO 179/1eA   |
| Notched Impact Strength (Charpy), -30°C | 3.2   | kJ/m² | ISO 179/1eA   |

| Thermal Properties                          | Value | Unit  | Test Standard  |
|---------------------------------------------|-------|-------|----------------|
| <b>ISO Data</b>                             |       |       |                |
| Melting Temperature (10°C/min)              | 223   | °C    | ISO 11357-1/-3 |
| Temp. of deflection under load (1.80 MPa)   | 105   | °C    | ISO 75-1/-2    |
| Temp. of deflection under load (0.45 MPa)   | 190   | °C    | ISO 75-1/-2    |
| Vicat softening temperature, 50°C/h 50N     | 150   | °C    | ISO 306        |
| Coeff. of Linear Therm. Expansion, parallel | 50    | E-6/K | ISO 11359-1/-2 |
| Coeff. of Linear Therm. Expansion, normal   | 80    | E-6/K | ISO 11359-1/-2 |
| Burning Behav. at 1.5 mm Nom. Thickn.       | HB    | class | UL 94          |
| Thickness tested                            | 1.5   | mm    | -              |
| Burning Behav. at thickness h               | HB    | class | UL 94          |
| Thickness tested                            | 0.8   | mm    | -              |

| Electrical Properties        | Value | Unit  | Test Standard |
|------------------------------|-------|-------|---------------|
| <b>ISO Data</b>              |       |       |               |
| Relative permittivity, 100Hz | 3.6   | -     | IEC 62631-2-1 |
| Relative permittivity, 1MHz  | 3.4   | -     | IEC 62631-2-1 |
| Dissipation Factor, 100Hz    | 31    | E-4   | IEC 62631-2-1 |
| Dissipation Factor, 1MHz     | 205   | E-4   | IEC 62631-2-1 |
| Volume Resistivity           | >1E13 | Ohm*m | IEC 62631-3-1 |
| Surface Resistivity          | 1E14  | Ohm   | IEC 62631-3-2 |
| Electric Strength            | 39    | kV/mm | IEC 60243-1   |
| Comparative tracking index   | 375   | -     | IEC 60112     |

| Other Properties    | Value | Unit  | Test Standard  |
|---------------------|-------|-------|----------------|
| <b>ISO Data</b>     |       |       |                |
| Water Absorption    | 0.4   | %     | Sim. to ISO 62 |
| Humidity absorption | 0.2   | %     | Sim. to ISO 62 |
| Density             | 1310  | kg/m³ | ISO 1183       |

| Material Specific Properties | Value | Unit  | Test Standard       |
|------------------------------|-------|-------|---------------------|
| <b>ISO Data</b>              |       |       |                     |
| Viscosity number             | 105   | cm³/g | ISO 307, 1157, 1628 |

| Rheological calculation properties | Value | Unit    | Test Standard |
|------------------------------------|-------|---------|---------------|
| <b>ISO Data</b>                    |       |         |               |
| Density of melt                    | 1090  | kg/m³   | -             |
| Thermal Conductivity of Melt       | 0.165 | W/(m K) | -             |

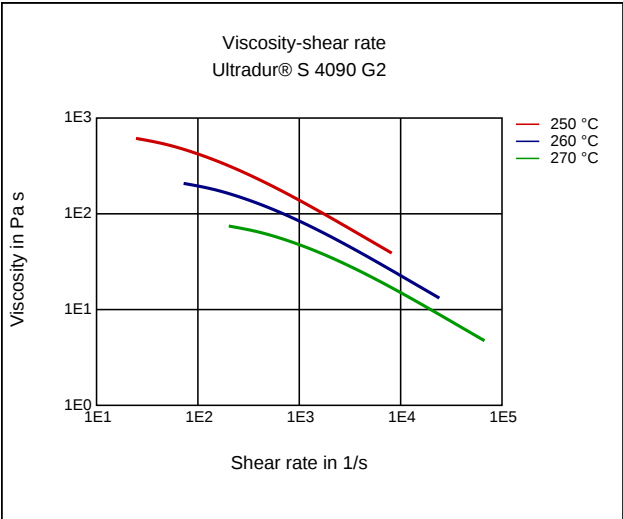
|                             |      |          |   |
|-----------------------------|------|----------|---|
| Spec. heat capacity of melt | 2060 | J/(kg K) | - |
| Ejection temperature        | 160  | °C       | - |

| Test specimen production              | Value | Unit | Test Standard |
|---------------------------------------|-------|------|---------------|
| ISO Data                              |       |      |               |
| Injection Molding, melt temperature   | 270   | °C   | ISO 294       |
| Injection Molding, mold temperature   | 80    | °C   | ISO 294       |
| Injection Molding, injection velocity | 200   | mm/s | ISO 294       |

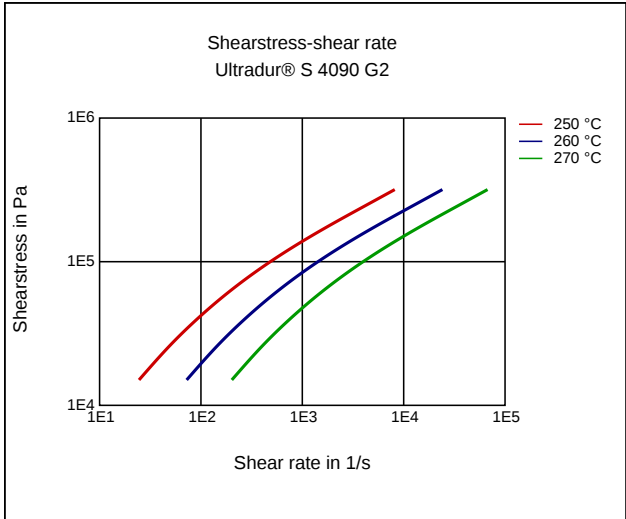
| Processing Recommendation Injection Molding | Value     | Unit | Test Standard |
|---------------------------------------------|-----------|------|---------------|
| Pre-drying - Temperature                    | 80 - 120  | °C   | -             |
| Pre-drying - Time                           | 4         | h    | -             |
| Processing humidity                         | ≤0.04     | %    | -             |
| Melt temperature                            | 250 - 275 | °C   | -             |
| Mold temperature                            | 60 - 100  | °C   | -             |

Diagrams

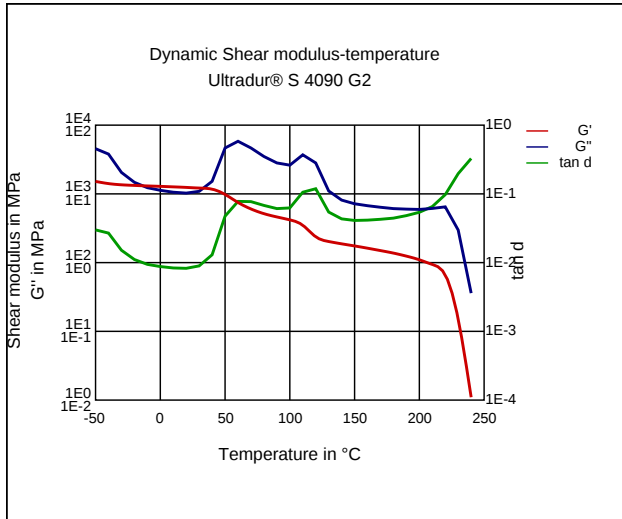
Viscosity-shear rate



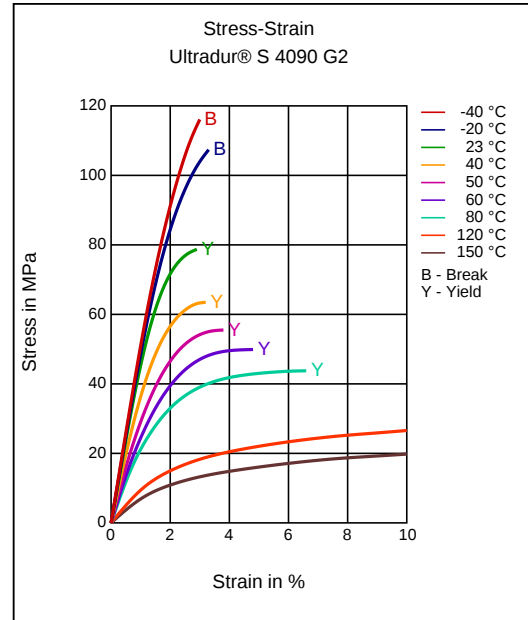
Shearstress-shear rate



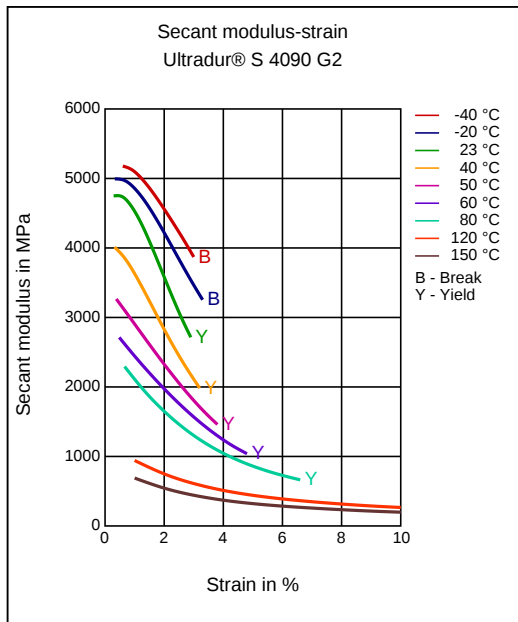
**Dynamic Shear modulus-temperature**



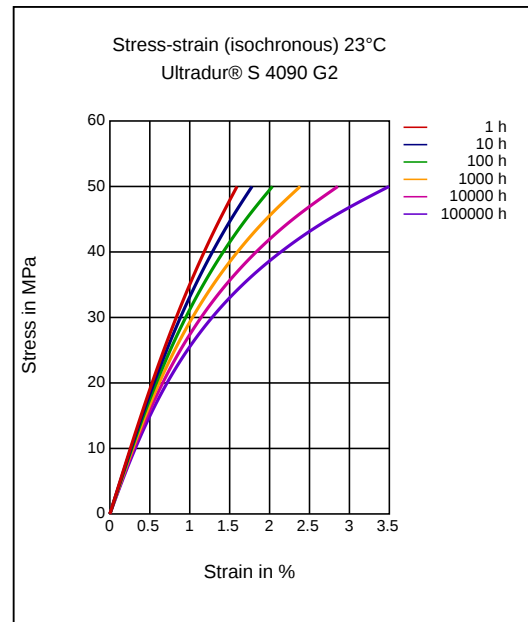
**Stress-strain**



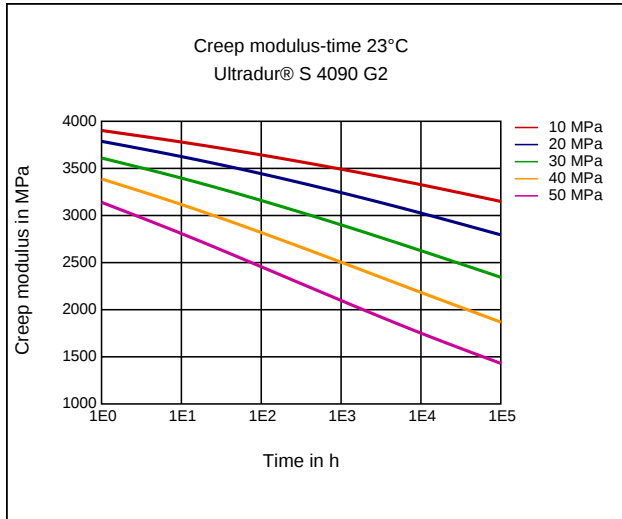
**Secant modulus-strain**



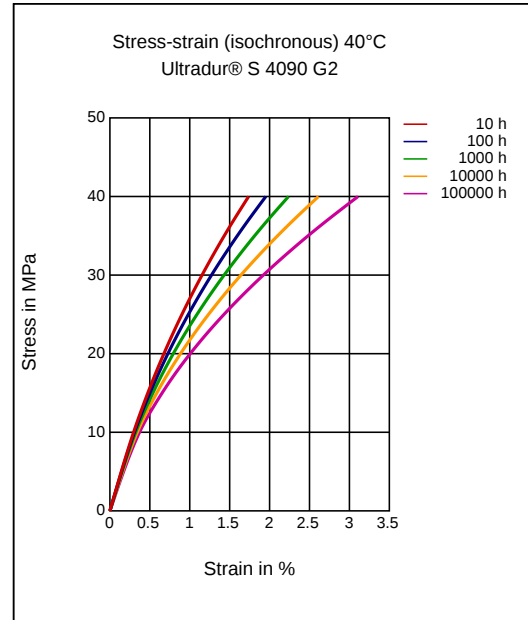
**Stress-strain (isochronous) 23 °C**



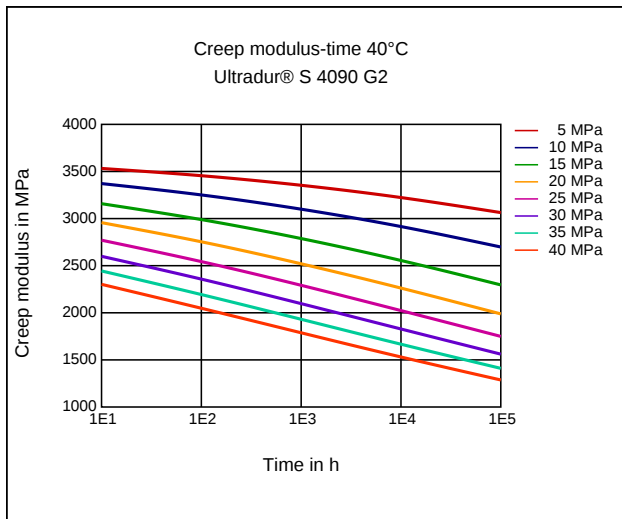
**Creep modulus-time 23°C**



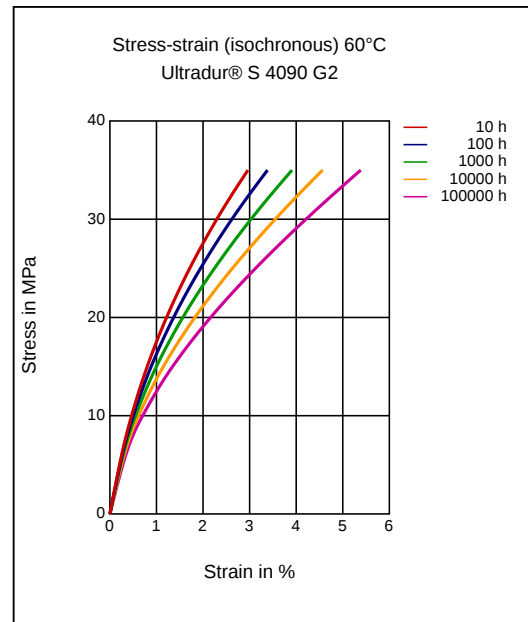
**Stress-strain (isochronous) 40°C**



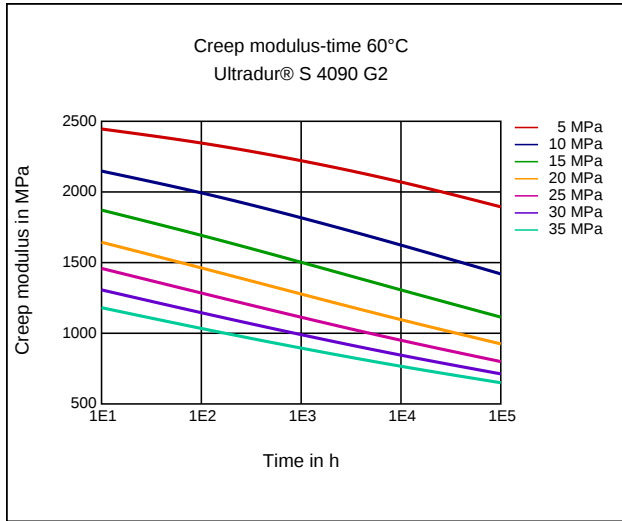
**Creep modulus-time 40°C**



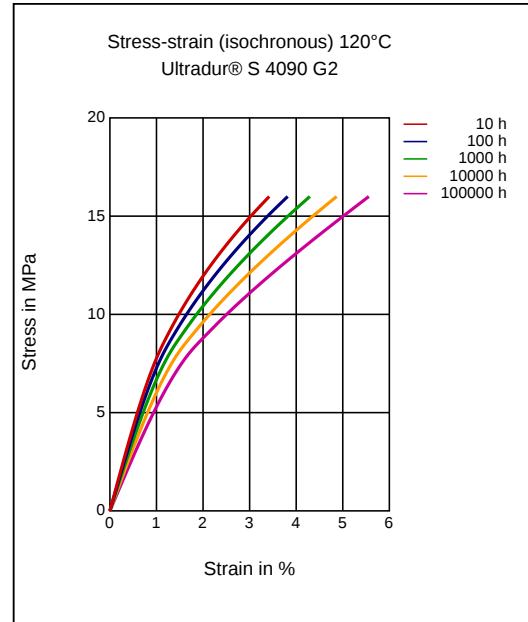
**Stress-strain (isochronous) 60°C**



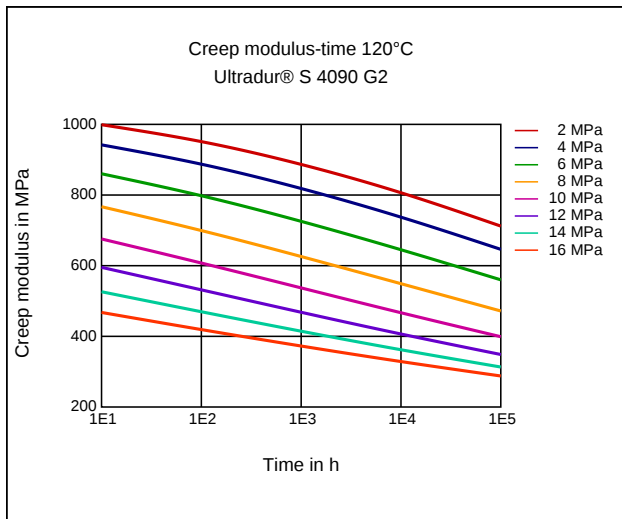
**Creep modulus-time 60°C**



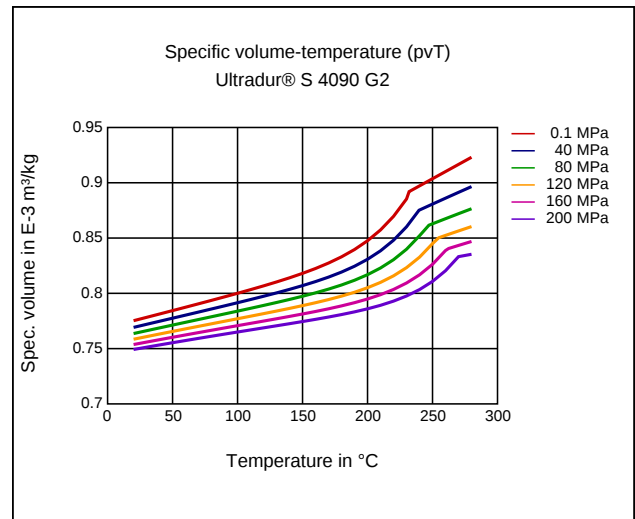
**Stress-strain (isochronous) 120°C**



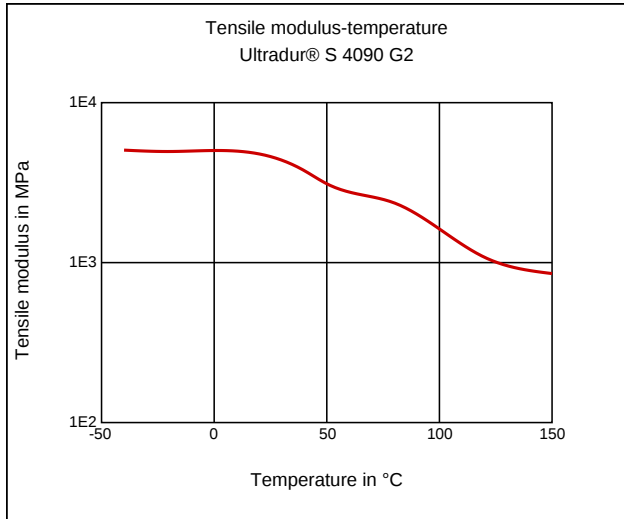
**Creep modulus-time 120°C**



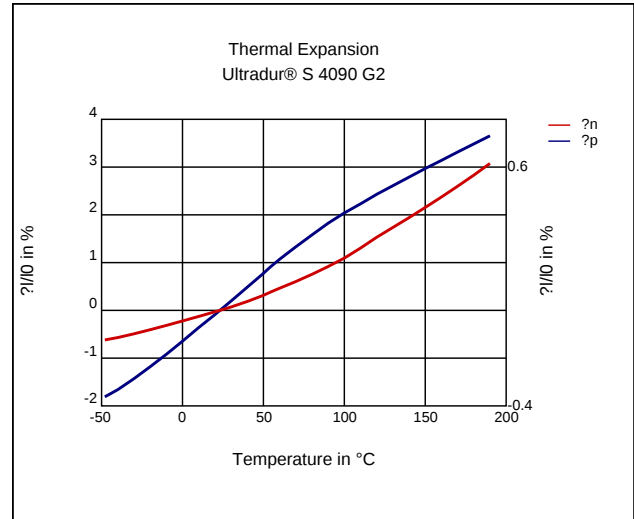
**Specific volume-temperature (pvT)**



### Tensile Modulus-Temperature



### Coeff. of linear thermal expansion, normal



### Characteristics

#### Processing

Injection Molding

#### Delivery form

Pellets

#### Additives

Lubricants

#### Special Characteristics

Light stabilized or stable to light, UV stabilized, Heat aging stabilized

### Injection Molding

#### PREPROCESSING

Pre/Post-processing, max. allowed water content: .04 %  
Pre/Post-processing, Pre-drying, Temperature: 80 - 120 °C  
Pre/Post-processing, Pre-drying, Time: 4 h

#### PROCESSING

injection molding, Melt temperature, range: 250 - 275 °C  
injection molding, Melt temperature, recommended: 270 °C  
injection molding, Mold temperature, range: 60 - 100 °C  
injection molding, Mold temperature, recommended: 80 °C

### Chemical Media Resistance

#### Acids

✓ Acetic Acid (5% by mass) (23°C)

### Disclaimer

#### Liability Exclusion

These guide values are measured and provided by the product manufacturer and have been determined on standardised test specimens and can be affected by pigmentation, mould design and processing conditions. M-Base has taken the guide values from the producer's original Technical Data Sheet. **ALBIS AND M-BASE ARE THEREFORE NOT RESPONSIBLE FOR THE ACCURACY OF THE GUIDE VALUES AND CANNOT GIVE ANY WARRANTY WITH REGARD TO THEIR CORRECTNESS.**

Any information given on the chemical and physical characteristics of our products, including, without limitation, technical advice on applications, whether verbally, in writing or by testing the product, is given to the best of our knowledge and in good faith and does not exempt the buyer from carrying out their own investigations and tests in order to ascertain the product's specific suitability for the purpose intended.

The buyer is solely responsible for confirming the suitability of the product for a particular application, its utilization and processing and must observe any applicable laws and government regulations. **NO EXPRESS OR IMPLIED RECOMMENDATION OR WARRANTY IS GIVEN WITH REGARD TO THE SUITABILITY OF THE PRODUCT FOR A PARTICULAR APPLICATION, SUCH AS, BUT NOT LIMITED TO, SAFETY-CRITICAL COMPONENTS OR SYSTEMS.**

**Healthcare uses:** the supply of any product by ALBIS for any medical, pharmaceutical or diagnostic application is conditional to an assessment by ALBIS in terms of compliance with ALBIS' internal risk management policy – even for products which are in general designated for use in Healthcare applications.

**Important:** irrespective of product type or designation, ALBIS does not recommend or support the use of any products it supplies which fall into the following medical, pharmaceutical or diagnostic application categories:

- risk class III applications according to EU directive 93/42/EEC
- any bodily implant application for greater than 30 days
- any critical component in any medical device that supports or sustains human life.

At all times, our standard terms and conditions of sale apply.