# Safety Information for glass material used in VITROVEX® floatation and instrument housings

## Product details

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|---|---|
| Trade name(s): | PYREX, JENAER GLAS, DURAN®, SIMAX |
| Material name: | Borosilicate glass 3.3 (special glass)<br>Laboratory, industrial and special industrial glassware |

## Possible hazards

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|---|---|
| Hazard description: | VITROVEX® floatation and instrument housings are, on the basis of data available to us, not a dangerous substance in the sense of chemical legislation or hazardous substances ordinance in its currently applicable version. |
| Particular risks applying to people and the environment: | None |

## Composition / Details of Constituents

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|---|---|---|
| Composition: | $SiO_2$ | 81% |
| | $B_2O_3$ | 13% |
| | $Al_2O_3$ | 2.4% |
| | $Na_2O$ | 3.0% |
| | $K_2O$ | 0.6% |
| Dangerous constituents: | None | |

## First-aid measures

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| General instructions: | No special measures required. |
| Upon skin contact: | No special measures required. |
| Upon eye contact: | No special measures required. |
| If swallowed: | No material-specific measures required. |

## Fire fighting measures

No special measures required.

## Measures to be taken in case of an unintended release

No special measures required.

## Handling and Storage

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|---|---|
| Handling: | If strongly heated (above $T_g$), the material softens, if heated above $T_s$, a transition to the liquid phase occurs. |
| Storage: | Drying under normal conditions: no special measures required. |

## Exposure limits and personal protective equipment

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|---|---|
| Workplace exposure limits and / or biological limit values: | Not applicable. |
| Occupational exposure limit value, (OEL) Germany: | Not applicable. |
| Workplace guideline limit values in the European Union: | Not applicable. |
| Limiting and monitoring of exposure: | Not applicable. |
| Personal Protective Equipment (PPE): | Not required |
| Respiratory protection: | Not required |
| Hand protection: | Not required |
| Eye protection: | Not required |
| Body protection: | Not required |
| Work hygiene statements: | Not required |
| Environmental protection measures: | see **Handling and Storage**<br>No measures additional to these are required. |

## Physical and chemical properties

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|---|---|---|---|
| Thermal conductivity l at 100 °C | [W/(m.K)] | | 0.2 |
| Mean specific heat capacity CP (20°C; 100°C) | [J / (g.K)] | | 0.8 |
| Young's modulus | [Gpa] | | 64 |
| Poisson's ratio m | | | 0.20 |
| Stress-optical coefficient: | [mm2 / N] | | 4.0.10-6 |
| Refractive index $n_d$: | | | 1.473 |
| Dielectric constant e | | at 1 MHz and 25 °C | 4.6 |
| Loss factor tan d | [$10^{-4}$] | | 37 |
| $T_k$ 100 (DIN 52326) | [°C] | | 250 |
| Thermal expansion a (20 °C; 300°C) | [$10^{-6}$/K] | | 3.3 |
| Transformation temperature $T_g$ | [°C] | | 525 |
| Density p | [g/cm$^3$] | | 2.23 |
| Temperatures at the viscosities | [°C] | $10^{13}$ dPa s<br>$10^{7.6}$ dPa s<br>$10^4$ dPa s | 560<br>820<br>1260 |
| Chemical resistance | Water<br>Acid<br>Base | (DIN ISO 719)<br>(DIN 12 116)<br>(DIN 180 695) | Class 1<br>Class 1<br>Class 2 |

## Stability and reactivity

Do not heat above $T_g$ for standard applications.

## Toxicology Statement

If handled correctly and used for the intended purpose, the material has no health-threatening effects. The material is physiologically harmless.

## Environmental Statement

The glass used in VITROVEX® floatation and instrument housings is environmentally neutral and biologically inert. It is non-biodegradable and non-soluble in water.

## Notes on disposal

Waste code according to AVV (German waste regulations): AVV- No. 10 11 12

## Transport statement

Is not designated as a dangerous material as defined by transport regulations.

## Regulations

Based on the data known to us, the product is not a dangerous substance in the sense of chemical legislation or hazardous substances ordinance.

## Other information

The statements are based on our current state of knowledge; it does not however represent any confirmation of material properties and does not form the basis for any contractual legal position.

The purpose of the information is solely to describe aspects of the material relating to health, safety and the environment. It remains the responsibility of the user, to check and test our material, in order that they are sure of the suitability of the material for the specific application. The user is also responsible for employing a reasonable, safe and legal method of use of our material as well as for its processing and handling. In the case of disagreement, only the German version of this specification is valid.