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Lead-free and preferably arsenic-free  
lanthanum heavy flint glasses



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### Abstract

The invention relates to lead-free and preferably arsenic-free optical glasses having a refractive index  $n_d$  of  $1.84 \leq n_d \leq 1.96$  and an Abbé number  $v_d$  of  $27 \leq v_d \leq 36$ , with good chemical resistance, excellent crystallization resistance and the following composition (in % by weight based on oxide):

|                                |    |   |      |
|--------------------------------|----|---|------|
| SiO <sub>2</sub>               | 1  | - | 8    |
| B <sub>2</sub> O <sub>3</sub>  | 13 | - | 19.5 |
| La <sub>2</sub> O <sub>3</sub> | 34 | - | 50   |
| MgO                            | 0  | - | 6    |
| CaO                            | 0  | - | 6    |
| BaO                            | 0  | - | 6    |
| ZnO                            | 0  | - | 9    |
| Σ MO                           | 1  | - | 10   |
| TiO <sub>2</sub>               | 4  | - | 15   |
| ZrO <sub>2</sub>               | 0  | - | 11   |
| Nb <sub>2</sub> O <sub>5</sub> | 6  | - | 14.5 |

In addition, the glass according to the invention, as well as having a maximum alkali metal oxide content of 10% by weight, may also contain standard refining agents, although arsenic is not preferred.

The present invention also relates to the use of the glass according to the invention in the application areas of imaging, projection, telecommunications, optical communication technology and/or laser technology.