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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 7962.22-2019

**Test method of colourless optical glass -- Part 22: Resistance to
attack by aqueous alkaline phosphate-containing**

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Foreword

GB/T 7962 "Colorless Optical Glass Test Method" is divided into the following 23 parts.

- Part 1. Refractive index and dispersion coefficient;
- Part 2. Optical uniformity Fizeau plane interferometry;
- Part 3. Optical uniformity holographic interferometry;
- Part 4. Temperature coefficient of refractive index;
- Part 5. Stress birefringence;
- Part 6. Young's modulus, shear modulus and Poisson's ratio;
- Part 7. Stripe degree;
- Part 8. Bubble degree;
- Part 9. Light absorption coefficient;
- Part 10. X-ray resistance;
- Part 11. Visible refractive index precision test;
- Part 12. Intraspectral transmittance;
- Part 13. Thermal conductivity;
- Part 14. Acid and stability;
- Part 15. moisture stability;
- Part 16. Linear expansion coefficient, transition temperature and sag temperature;

---Part 17. UV, infrared refractive index;

---Part 18. Krebs hardness;

---Part 19. Wear;

--- Part 20. Density;

---Part 21. alkali resistance stability;

---Part 22. Resistance to phosphoric acid stability;

--- Part 23. Weather stability.

This part is the 22nd part of GB/T 7962.

This part is drafted in accordance with the rules given in GB/T 1.1-2009.

This section uses the redrafting method to modify the alkalinity of the optical glass blank in a detergent solution at 50 ° C using ISO 9689.1990

Phosphoric acid stability test method and classification.

This section has more structural adjustments than ISO 9689.1990. This section is listed in Appendix A with ISO 9689.1990.

The chapter number change comparison checklist.

The technical differences between this part and ISO 9689.1990 and their reasons are as follows.

---About the normative reference documents, this part has made specific technical differences to adapt to China's technical conditions, adjustments

The situation is reflected in Chapter 2, "Regulatory Citations", and the specific adjustments are as follows.

* Replace ISO 2768-1.1989 with GB/T 1804-2000 equivalent to international standards;

* Replaced ISO 3696.1987 with GB/T 6682-2008 modified to adopt international standards;

* Removed ISO 3585.1976;

* Added references to GB/T 678, GB/T 903 and GB/T 1185-2006.

--- Unify "2-propanol" into "isopropyl alcohol" (based on its molecular formula and role, judge the two as the same substance, according to Chinese custom name).

--- Chapter 6 adds 6.1 material requirements (reducing differences in test results due to material differences).

--- Change the requirements of 6.1 polishing and refining process in ISO 10629.1996 to the

quality requirements of 6.2 of this part (for standard Implementation).

--- Modified the measurement accuracy of the 6.3 size (reducing the surface area difference of the sample to be tested).

--- The contents of Chapter 7 are re-striped and modified according to test requirements and test procedures, adding tolerances, etc.

Implementation).

--- The table is graded after the decimal point of the phosphoric acid resistant phosphoric acid stability, increasing the format of the test report.

This section has made the following editorial changes.

--- Change the standard name to "Colorless optical glass test method Part 22. Phosphoric acid stability";

--- Added informative Appendix A.

1 Scope

This part of GB/T 7962 specifies the principle, test procedure, data processing and method of the phosphoric acid stability test method for colorless optical glass.

Grading, etc.

This section applies to colorless optical glass, other types of glass can be used as reference.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article.

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 678 chemical reagent ethanol (anhydrous ethanol)

GB/T 903 colorless optical glass

GB/T 1185-2006 Optical parts surface rickets

GB/T 1804-2000 General tolerances tolerances for linear and angular dimensions without tolerances (eqv ISO 2768-1.1989)

GB/T 6682-2008 Analytical laboratory water specifications and test methods (ISO 3696.1987, MOD)

3 Principle

When the polished sample is placed in a tripolyphosphate alkaline solution at a temperature of 50 ° C and a concentration of 0.01 mol/L, the corrosion is specified.

During the weighing, the mass loss of the sample to be measured is measured, and the depth of erosion is calculated based on the glass density. According to the time required for erosion to reach 0.1μm and invade

The change of the surface of the sample to be tested after the completion of the etching determines the grade of the phosphoric acid stability of the tested glass.

4.1 General

Chemical reagents should be used during the test unless otherwise specified.

4.2 Water

Should meet the requirements of the secondary water specified in GB/T 6682-2008.

4.3.1 Tripolyphosphate purification

Prepare a tripolyphosphate solution with a mass fraction of 10% to 15%. After filtering out the insoluble matter, gradually add ethanol to reach the volume of ethanol.

Phosphate solution volume = 4.1. Stir for about 30 min, filter out the crystals of hexahydrate, and mix the solution (volume ratio. water. ethanol = 1.1)

Wash twice. The hexahydrate crystals were then filtered off with a very small amount of water, and the above washing process was repeated at least four times. At room temperature and relative humidity

The crystals were dried at (50 +/- 10)%. The purity of the tripolyphosphate obtained after purification is >=99.5%.