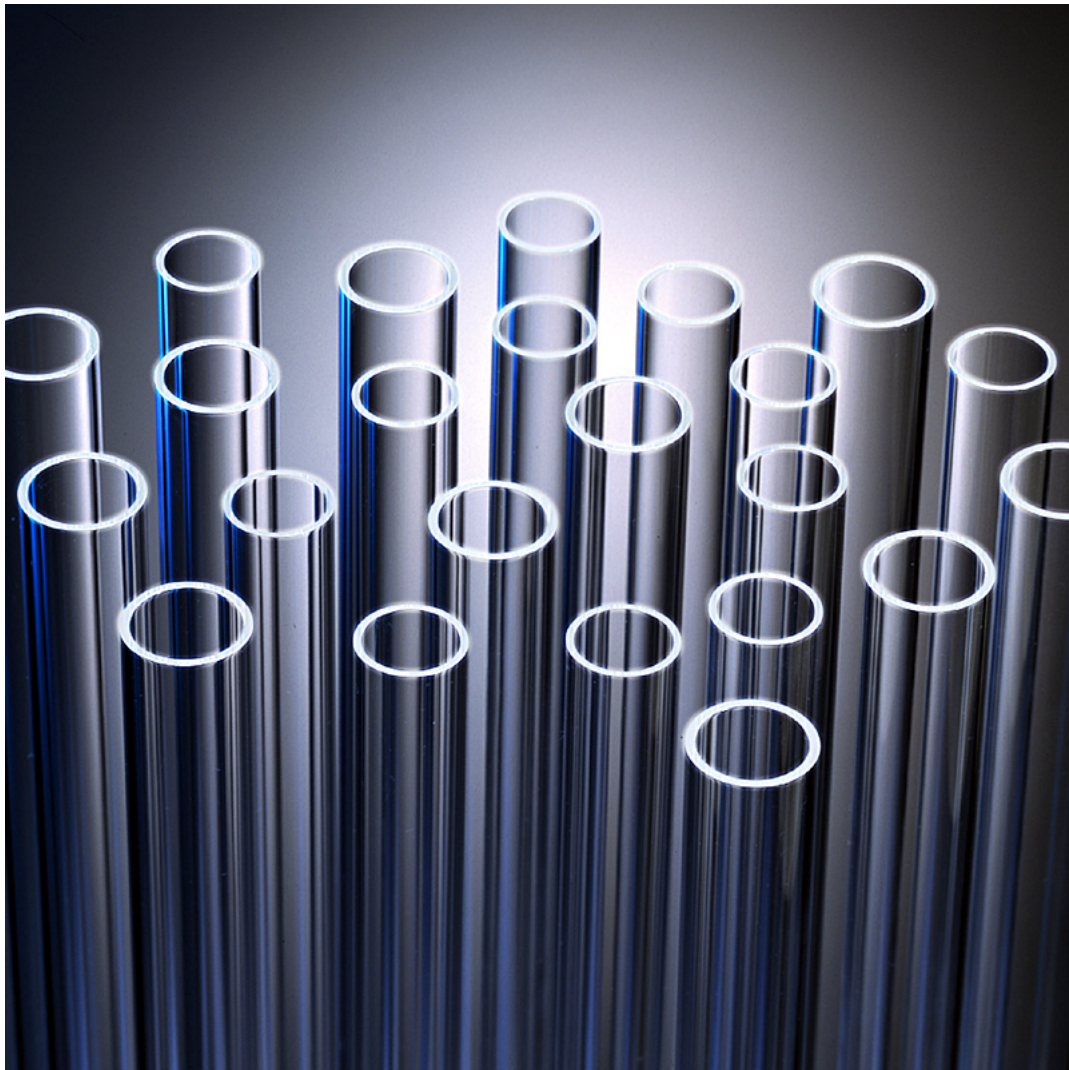


Transparent Quartz Glass for Lamps



Compared with ordinary glass materials, quartz glass has superior light transmittance and heat-resistance characteristics. Thus, quartz glass is widely used in various lamps, including mercury lamps, halogen lamps, xenon lamps, and so on.

Lamps in which quartz glass is used are employed in numerous different fields. For example, these lamps are used for sterilization in the foodstuffs and medical treatment industries, as light sources in all types of lighting, optical equipment, and in the exposure devices used in semiconductor manufacturing processes, and as lamps used in cleaning applications, etc.

Shin-Etsu Quartz Products Co., Ltd. offers a broad line-up, from natural quartz glass and ozone-free quartz glass all the way to ultra-high purity synthetic quartz glass suitable for use in vacuum and ultraviolet regions. Thus, you can select the material that is optimal for the application use you desire.

Transparent Quartz Glass for Lamps: Product Types

Quartz glass is well suited to lamp-usage for its superior light transmittance and heat-resistance characteristics.

Shin-Etsu Quartz Products Co., Ltd. offers the following products for lamp-usage quartz glass tubes: the M series of ozone-free natural quartz glass, the HERALUX series of ozone-containing glass, and the SUPRASIL-F series of synthetic quartz glass. All of these are made using the Company's unique "tool-free" method, enabling smooth and flat inner and outer surfaces without any flaws.

And we can manufacture quartz glass tubes for lamps in suitable size and in small lots.

Ozone-Free Quartz Glass: M235 & M382

Our products M235 and M382 are ozone-free quartz glass whereby, through doping with a special oxidized metal, the light transmittance characteristics for ultraviolet waves are controlled and reduced. At wavelengths of 235 nm and shorter, M235 shows reduced light transmittance of 50% or less, while M382 has 50% or less reduced light transmittance at wavelengths of 382 nm and shorter.

Synthetic Quartz Glass: SUPRASIL-F300 & SUPRASIL-F310

Our SUPRASIL-F300 and SUPRASIL-F310 brands of synthetic quartz glass are bubble-free, and they have an ultra-high purity well beyond that of natural quartz glass. These brands also have superior light transmittance characteristics in ranges from vacuum ultraviolet to infrared. F300 is synthetic quartz glass with no OH base, while F310 is synthetic quartz glass containing OH base at approximately 300 ppm.

Natural Quartz Glass: HERALUX, HERALUX-E, HERALUX-LA & HERALUX-E-LA

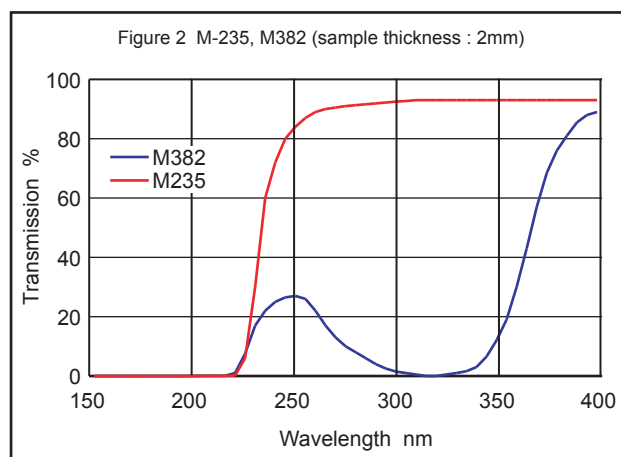
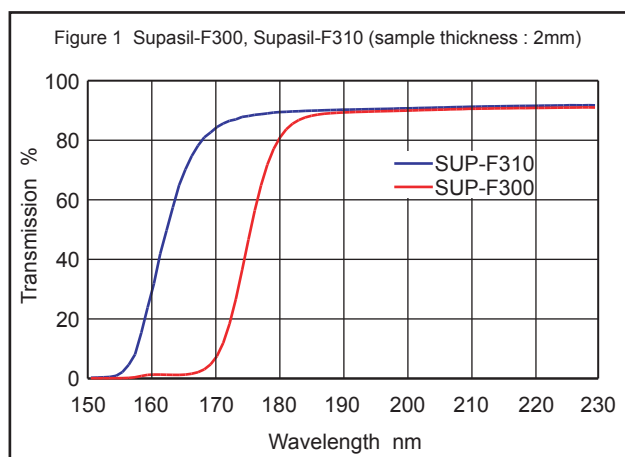
HERALUX and HERALUX-LA are natural quartz glass brands made by oxyhydrogen flame melting. HERALUX-E and HERALUX-E-LA are natural quartz glass brands made by electrical melting. Especially, HERALUX-LA and HERALUX-E-LA are high purity natural quartz glass brands from which metallic impurities (and especially alkali metals) have been removed using a special refining process.

● Product Types

Category	Grade	OH Content (ppm)	Characteristics	Shape
Ozone-Free Quartz Glass	M235 M382	approx. 130-220	M235 shows reduced light transmittance of 50% or less at wavelengths of 235 nm and shorter, while M382 has 50% or less reduced light transmittance at wavelengths of 382 nm and shorter.	Tube
Synthetic Quartz Glass	SUPRASIL-F300	<1	An ultra-pure product, without any bubbles or foreign matter. Its transmittance characteristics are superior especially at vacuum ultraviolet wavelengths.	Tube
	SUPRASIL-F310	approx. 300		Tube, Plate
Natural Quartz Glass	HERALUX HERALUX-LA	approx. 175	This shows superior transmittance characteristics at wavelengths of 200 nm and above.	Tube, Plate, Rod
	HERALUX-E HERALUX-E-LA	approx. 20		

* Please note that for some discharge lamps, quartz glass containing OH base cannot be used. For these types of applications, we also handle the HLQ-200 series with low OH base content (imported from the German company, Heraeus).

● Measured Transmission (Reference data for a sample with 2 mm thickness and mirror-surface finishing)



Shin-Etsu Quartz Products Co., Ltd.

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