

Tech Talk: Types of Glass

Soda lime silicate glass

Soda lime silicate glass is the most prevalent type of glass used in general architectural and automotive applications. It is composed of about 70% **silica** (silicon dioxide), 15% **soda** (sodium oxide), and 9% **lime** (calcium oxide), with much smaller amounts of various other compounds. Architectural applications include glass railings, facades, skylights, storefronts, elevator enclosures. Automotive applications include windshields and transportation windshields and passenger windows and doors.

Borosilicate glass

Borosilicate glass has a very low coefficient of thermal expansion, making it more resistant to thermal shock. Boric acid is added to the glass mixture. Applications include oven doors, microwave appliances, fireplace panels, photovoltaics

Aluminosilicate glass

Aluminosilicate glass contains aluminum oxide (20-40%). This type of glass has greater chemical durability than soda lime silicate and borosilicate glass and can withstand higher temperatures. Applications include electronic displays, touchscreen devices, optical components. Aluminosilicate glass is also used in aerospace applications.

Glass Composition

<i>Compound</i>	<i>Soda lime silicate Glass (%)</i>	<i>Borosilicate Glass (%)</i>
<i>Silicone Dioxide (SiO₂)</i>	<i>69</i>	<i>80.6</i>
<i>Boron Trioxide (B₂O₃)</i>	<i>1</i>	<i>13</i>
<i>Sodium oxide (Na₂O)</i>	<i>1.3</i>	<i>4</i>
<i>Aluminum Oxide (Al₂O₃)</i>	<i>4</i>	<i>2.4</i>

Glass Properties

<i>Properties</i>	<i>Soda lime silicate</i>	<i>Borosilicate</i>	<i>Aluminosilicate</i>
<i>Softening point</i>	<i>740 °C</i>	<i>820 °C</i>	<i>852 °C</i>
<i>Annealing point</i>	<i>546 °C</i>	<i>560 °C</i>	<i>613 °C</i>
<i>Strain point</i>	<i>514 °C</i>	<i>518 °C</i>	<i>563 °C</i>
<i>Transformation temperature range</i>	<i>520-550 °C</i>	<i>525-560 °C</i>	<i>575 -600 °C</i>