Soda-lime Glass

Soda-lime glass is often referred to as float glass because it is formed by drawing glass over molten tin baths. Composition- Alkali / alkaline-earth Silicate Glasses (usually about 12-16% alkali (Na₂O), 8-16% alkaline earths (CaO + MgO), 0-2% Al₂O₃ and about 71-75% SiO₂.

General Chemical Composition:

- Silicon dioxide (SiO₂) 69-74%
- Calcium oxide (CaO) 5-12%
- Sodium oxide (Na₂O) 12-16%
- Magnesium oxide (MgO) 0-6%
- Aluminum oxide (Al₂O₃) 0-3%
- Trace amounts of impurities which include Fe₂O₃ (iron oxide) which gives soda-lime glass its greenish tint

Composition varies seasonally (time of year glass is made) and location (which plant glass is made).

Mechanical and Thermal Properties:

- Specific Weight: 2,483 g/cm³
- Hardness (Moh’s Scale): 6-7
- Density: 2.44 g/cm³
- Poisson’s Ratio: 0.22
- Modulus of Elasticity (Young’s): 7.2 x 10¹⁰ Pa
- Modulus of Rigidity (Shear): 3.0 x 10¹⁰ Pa
- Bulk Modulus: 4.3 x 10¹⁰ Pa
- Thermal Coefficient of Expansion (0/300°C): 8.6 x 10⁻⁶/°C
- Softening Point: 726°C/1340°F
- Annealing Point: 546°C/1015°F
- Strain Point: 514°C/957°F

Optical Properties:

- Index of Refraction: 1.523 @ 435nm
  1.513 @ 645nm
Chemical Properties:

Hydrolytic resistance: Class 3. Not as chemically resistant as Borofloat®33 or N-BK7

Special Properties:

Less expensive than either Borofloat®33 or Bk-7. Soda-lime glass can be fully tempered whereas Borofloat®33 cannot. Soda-lime has a slight greenish tint due to its iron content.