THE CHEMISTRY OF COLOURED GLASS

Glass is coloured in 3 main ways. It can have transition or rare earth metal ions added; it can be due to colloidal particles formed in the glass; or it can be due to particles which are coloured themselves. This graphic shows some of the typical chemical elements that are used to colour glass.

SODA-LIME GLASS

COMPOSITION

SiO_2 70-74%
SILICON DIOXIDE

CaO 10-14%
CALCIUM OXIDE

Na_2O 13-16%
SODIUM OXIDE

Soda-lime glass is the most common glass type, making up an estimated 90% of all manufactured glass. Its uses include containers, windows, bottles, and drinking glasses. The above percentages are a general composition only; other compounds are also present in smaller amounts.

IRON Fe^{2+} | IRON-SULFUR Fe-S | COPPER Cu^{2+} | CHROMIUM Cr^{3+} | NICKEL Ni^{2+} | GOLD Au | COPPER-TIN Cu-Sn

MANGANESE Mn^{3+} | COBALT Co^{2+} | URANIUM $U^{4+/5+/6+}$ | NEODYMIUM Nd^{3+} | ERBIUM Er^{3+} | SELENIUM-CADMIUM Se-Cd | CADMIUM as CdS

These are typical colours, and can be affected by the type of glass as well as the concentration of the colourant. Combination with other elements and compounds can also have an effect on the final colouration of the glass.