










Colour Chemistry

CHEMICAL COMPOSITION OF GEMSTONES

THE COLOURS OF GEMSTONES ARE AFFECTED BY DIFFERENCES IN CHEMICAL AND ATOMIC STRUCTURE, LEADING TO THE ABSORPTION OF DIFFERENT WAVELENGTHS OF LIGHT. THEIR HARDNESS IS MEASURED ON THE MOHS SCALE, WHICH RUNS FROM 1-10.

 <p>ALEXANDRITE Al_2BeO_3 Hardness: 8.5 Colour caused by chromium ions replacing aluminium in some sites. Colour varies in different light.</p>	 <p>AMETHYST SiO_2 Hardness: 7.0 Colour caused by irradiation of iron 3+ ions in place of silicon in some locations in the structure.</p>	 <p>AQUAMARINE $\text{Be}_3\text{Al}_2(\text{SiO}_3)_6$ Hardness: 7.5-8.0 Colour caused by iron 2+/3+ ions replacing aluminium ions in some locations in the structure.</p>	 <p>DIAMOND C Hardness: 10 Colours can be faintly coloured by the trapping of nitrogen atoms in the crystal.</p>
 <p>EMERALD $\text{Be}_3\text{Al}_2(\text{SiO}_3)_6$ Hardness: 7.5-8.0 Colour caused by chromium ions replacing aluminium in some locations in the structure.</p>	 <p>GARNET $\text{Mg}_3\text{Al}_2(\text{SiO}_3)_6$ Hardness: 6.5-7.5 Colour caused by iron 2+ ions replacing magnesium ions in some locations in the structure.</p>	 <p>OPAL $\text{SiO}_2 \cdot n\text{H}_2\text{O}$ Hardness: 5.5-6.0 A 'play of colours' caused by interference & diffraction of light passing through the structure.</p>	 <p>PEARL CaCO_3 Hardness: 2.5-4.5 Produced in the soft tissue of shelled molluscs. Most modern pearls are artificially cultured.</p>
 <p>PERIDOT Mg_2SiO_4 Hardness: 6.5-7.0 Colour caused by iron 2+ ions replacing magnesium ions in some locations in the structure.</p>	 <p>RUBY Al_2O_3 Hardness: 9.0 Colour caused by chromium ions replacing aluminium ions in some locations in the structure.</p>	 <p>SAPPHIRE Al_2O_3 Hardness: 9.0 Colour caused by titanium and iron ions replacing aluminium ions in some locations in the structure.</p>	 <p>SPINEL MgAl_2O_4 Hardness: 7.5-8.0 A variety of colours are possible, caused by impurities such as iron, chromium and nickel.</p>
 <p>TOPAZ $\text{Al}_2\text{SiO}_5(\text{F,OH})_2$ Hardness: 8.0 Pure topaz is colourless; blue & brown varieties are caused by impurities in atomic structure.</p>	 <p>TOURMALINE $\text{Na, Li, Al}_6(\text{BO}_3)_3(\text{SiO}_3)_6\text{F}_4$ Hardness: 7.0-7.5 Colour caused by manganese ions replacing lithium and aluminium ions in some sites.</p>	 <p>TURQUOISE $\text{Al}_2(\text{PO}_4)_2(\text{OH}) \cdot 4\text{H}_2\text{O}$ Hardness: 5.0-6.0 Colour caused by the presence of copper ions coordinated to the hydroxide ions and water.</p>	 <p>ZIRCON ZrSiO_4 Hardness: 7.5 A range of possible colours that depend on the impurities present. Colourless specimens are popular diamond substitutes.</p>

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The Chemistry of Colour[edit]. Coloured chemicals absorb electromagnetic waves in the visible part of the spectrum. The absorbed energy causes changes in. Students use colourful experiments to investigate the properties of colour and its use in chemistry. Explore the colours in different types of art using our colour wheel. Click on a colour for inspiration, and then move the horizontal slider to change the tone. Basis for colour. Unlike most organic compounds, dyes possess colour because they 1) absorb light in the visible. Students embarking upon a colour chemistry course usually approach it by way of a general introduction and proceed to more detailed treatment of the subject. This book provides an up-to-date insight into the chemistry behind the colour of the dyes and pigments that make our world so colourful. The impressive breadth. Review of Colour Chemistry, 2nd Edition. Robert E. Buntrock. Buntrock Associates, Orono, Maine, United States. J. Chem. Educ., 93 (10). Founded in , the Department of Colour Science, which joined the School of Chemistry in , has over years of research history, leading to. Buy Colour Chemistry: RSC on intekarredamenti.com ? FREE SHIPPING on qualified orders. Colour - Physical and chemical causes of colour: According to the law of energy conservation, energy can be converted from one form to another, but it cannot. A Heriot-Watt University research impact case study about how our expertise in traditional and specialist colour chemistry helped nine companies achieve faster, . The Chemistry of Colour. Substances are coloured if they absorb energy that is in the visible frequency of the electromagnetic spectrum. The energy absorb. Are you looking for a Masters degree in Colour Chemistry? Compare postgraduate programmes and find out about course content, careers and job prospects. A molecule might absorb photons from anywhere across the whole electromagnetic spectrum, from radio waves through hard X-rays, but it will. A workshop for 79 year-olds to learn more about what colour is and how.

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