

SOLID TRANSITION METAL OXYFLUORIDES

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Solid metal oxyfluorides are compounds with many useful properties to form oxides and fluorides. These materials have the high thermal and chemical stability, metal and semi-conducting conductivity. They may be superconductors.

This work is the review of the properties and synthetical methods of transition metal oxyfluorides. There are two paths to obtain such compounds: solid state and hydrothermal reactions. The first one has some variations: the fluorination of metal oxides by different fluorinating agents; the pyrohydrolysis of metal fluorides; the heating of oxides and fluorides mixtures; the decomposition of fluoroammonium metal compounds, fluorometal carbonates and hydrates. The hydrothermal reactions are carried out at high pressure.

About 100 solid transition metal oxyfluorides are obtained and described now.

The preparation of nonstoichiometric bronzelike tungsten, molybdenum and chromium oxyfluorides by decomposition of their fluoroammonium complexes and their properties are also described.