

Effective ways to neutralise mercury in modern conditions.

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Abstract

The article describes the chemical hazards that can occur from the spillage or release of mercury and its harmful vapours, both at work and at home, leading to man-made pollution and even death among humans. The analysis of existing methods of neutralisation of mercury and its hazardous vapours showed that this issue has not yet been fully studied. Methods for obtaining mercury from cinnabar (a bright red mineral) are described. Physical, toxic and chemical properties of mercury are revealed. The unique properties and areas of its application are given: metallurgy, chemical industry, galvanic cells, electroplating, medicine, agriculture, laboratory practice, separation of native gold from non-metallic impurities, preparation of drugs for the treatment of dermatoses, etc. The main properties of dissolving mercury in acids are described. Mercury salts (their use as catalysts in many chemical processes) are characterised. The global cycle and transformation of mercury in nature, in particular in the atmosphere, soil and water, are considered. The current maximum permissible concentrations (MPC) are given: emission limit values at industrial workplaces; average-variable rate in the workplace; for research institutes, higher educational institutions, laboratories working with mercury; for living quarters. The physiological effect of

mercury and its vapours on the human body is described (intoxication, cerebrovascular disorders, catarrhal manifestations in the upper respiratory tract, bleeding gums, toxic shock, abdominal pain, metal bite in the mouth, vomiting of blood with severe renal failure). Diseases arising from the dangerous effects of mercury are considered. Mechanical and chemical methods of neutralisation (demercurisation) of mercury and its harmful vapours, from the simplest and not expensive, to more complex and materially expensive are given.

Keywords: cinnabars; demercurisation; maximum permissible concentrations; mercuric chloride; mercury salts.