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Disposal of Sodium and Potassium Residues [1]

Herbert W. Roesky

Apparatus

Ceramic flower pot (10 cm in diameter), big porcelain dish, pair of tweezers, safety glasses, laboratory coat, protective gloves

Chemicals

Water, sodium and potassium residues.

Attention!

Alkali metals and water react intensely, producing fire. Safety glasses and protective gloves must be worn at all times.

Disposing of sodium and potassium residues often causes accidents due to the peroxides formed on the surface of alkali metals when they are kept in the air for some time.

Sodium and potassium are often used for drying ether, tertiary amines, hydrocarbons and aromatics. Sodium and potassium residues have to be disposed of. Usually this is done with 2-propanol. Serious accidents can occur if peroxide-containing alkali metals are pressed or cut, and if an alcohol containing water or an alcohol of low molar mass is used. Often the reaction cannot be controlled when the alcohol is added too fast.

Procedure

The following method describes a safe procedure that is less expensive and environmentally friendly.

The bottom of a flower pot is covered (inside) with a paper filter, and it is half-filled with sand. About 1 g of an alkali metal residue is placed on top of the sand using a pair of tweezers. Then the pot is completely filled with sand. The pot is then placed in the dish, and water is added to a depth of 2 cm. Because of the capillary action of the sand, the water rises in the pot, and after some time the sand surface becomes wet and darkens in color. After one or two days the water will have decomposed the alkali metals. The sand is washed and dried, and can be used again. This method avoids the use of a flammable alcohol.

Waste Disposal The water used for washing the sand can be flushed down the drain.

Reference

1 H.W. Roesky, *Inorg. Chem.* **2001**, *40*, 6855.