Chemical storage: calcium hydroxide

Posted by Anonymous on Thu, 2016-06-23 14:03

Calcium hydroxide: I have 2 bottles of Calcium Hydroxide that are moist. Can it be dried out? Or is it no good or Ok as is? Also how do I stop the chemicals from becoming moist?

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Calcium hydroxide

Submitted by on 21 July 2016

Answer reviewed 22 February 2023

According to Armarego et al.,[1] pure calcium hydroxide should be prepared from calcium carbonate, by heating the carbonate at 1000°C to give calcium oxide, which is hydrated to give an aqueous suspension of calcium hydroxide, which is then collected by filtration and dried at 110°C. However, this procedure is more involved than required for school purposes, and is not economical. We consider that it would be more economical and less hazardous to simply dispose of the moist calcium hydroxide and purchase a fresh supply.

If the calcium hydroxide has absorbed water, it is likely to have also absorbed carbon dioxide from the air,[2] and so, would have some calcium carbonate impurity. Heating a small quantity in an oven at 110°C would be a reasonable step for removing the absorbed water, although it would not remove the calcium carbonate impurity; as calcium hydroxide is corrosive, care should be taken to prevent exposure through inhalation or skin contact. When dry, or even in its current state, the impure calcium hydroxide could be used to make limewater, by using an excess, letting the precipitate settle, and then decanting the solution from the precipitated calcium carbonate.

However, as your current stocks may be quite old and are degraded, Science ASSIST recommends that they be disposed of, via a licenced chemical waste disposal contractor. They should not be disposed of to landfill as they pose a corrosive hazard. However, if you only have very small quantities, they can be treated by first adding to water, and neutralising the mixture to within pH 6-8 with dilute hydrochloric acid. The neutral mixture can then be washed down the sink with dilution.

Calcium hydroxide should be protected from air and water and stored in a cool dry place. We recommend that your school purchase a new bottle and that this be stored in a desiccator, ensuring that no incompatible chemicals are stored along with it in the desiccator. In general, it is good practice to purchase and store minimal quantities of chemicals.

References

[1]Armarego, W.L.F., Chai, C.L.L. 2009. *Purification of Laboratory Chemicals*, 6th Edition, Butterworth-Heinemann

[2] ChemSupply, (2023), *Safety Data Sheet: Calcium hydroxide.* Search https://www.chemsupply.com.au/ to source the latest Safety Data Sheet via the product information page.
