

Revalidate Liquid Chemicals in AHRI to minimize Hazardous Chemical Wastes

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Objectives:

Hazardous waste minimization is first-choice method of pollution prevention. Waste minimization means a reduction in both the volume and the physical hazards or toxicity of the material and as such has many advantages. Smaller quantities of waste mean less impact on the environment at time of disposal. Waste minimization leads also to safer conditions in the lab and in handling and transporting of the waste. Chemical waste can be minimized through thorough planning of chemicals needed, proper estimation of chemical consumption rate, and exchange of unwanted chemicals with others. Purchase chemical in appropriate package, especially for chemicals with short shelf life or peroxide forming chemicals.

Material & methods:

From the waste minimization activities as advised by EGBSA, is the reuse of chemicals in AHRI. The chemical safety team of EGBSA ask AHRI departments to list all expiration dates of chemicals as a part of a project to minimize the waste by use expired chemicals after validation. By using simple methods of low cost, depending on the physical and chemical characteristic features mentioned in MSDS such as specific gravity and under complete chemical safety procedures which been applied for such processes, the EGBSA team validated several expired solvents including Chloroform, Hexane, N. Hexane, Acetic acid, Acetic anhydride, Ammonia, Xylol, Diethyl ether, Petroleum ether, Ethyl acetate, Acetonitrile and Acetone.

Results:

Revalidating expired liquid chemicals for further use in Chemistry Department helped reducing chemical wastes and saved huge expenses.

Recommendation:

From the aforementioned results, we recommend revalidation of liquid chemicals in chemistry laboratories to reduce waste production and provide a safer working environment, in addition to cost saving. Also we recommend using strict chemical safety procedures during the processes of revalidation which are built on knowledge about the liquid chemical undergoing revalidation. Analysts should know the route of contact (skin contact or inhalation) for proper choice of the suitable type of PPE and the correct place to work on open bench or chemical safety cabinet.