



Risk control

Storage of hazardous substances in educational establishments



Overview

Over the past year or so, a flurry of media attention, school evacuations and disruption to local communities resulted from a spate of controlled explosions being performed on hazardous materials used in science lessons. Army bomb disposal teams were called upon to deal with a large number of cases from across the UK where inappropriate storage of 2,4-DNP (2,4-dinitrophenylhydrazine,) led to materials becoming potentially unstable with the significant risk of explosion.

www.bbc.co.uk/news/uk-wales-37846755

2,4-DNP (2,4-dinitrophenylhydrazine,) is a hazardous material with a number of industrial uses but in schools and colleges 2,4 -DNP is used as an indicator to determine the chemical identity of aldehydes or ketones. 2,4 -DNP usually appears in a solid form but needs to be kept from drying out otherwise it becomes explosive etc.

In all the recent cases it seems a failure to monitor and maintain the necessary storage arrangements are at the root of the problem.

Depending upon the material's characteristics and the situational context e.g. supply, transportation, storage, use or disposal, hazardous substances can fall under several pieces of regulation, including: The Control of Substances Hazardous to Health, Dangerous Substances Explosive Atmospheres and The Explosives Regulations etc.

If you are in any doubt about the condition of stored hazardous substances inc. 2,4 -DNP you are advised to contact CLEAPSS (formerly known as the Consortium of Local Education Authorities for the Provision of Science Services) as one of the DFE's key recognised sources of guidance along with the HSE (<http://science.cleapss.org.uk/>)

Thankfully the recent cases have not resulted in any serious injury but it provides us with a timely reminder that the risks of hazardous materials need to be carefully and systematically managed.

Managing hazardous substances can seem a complex aspect of health and safety but by applying good risk management principles there should be no reason why most practical experiments in science lessons can't go ahead.

You can't manage what you don't understand, so ensure you involve competent people with access to current information (e.g. material safety data sheets) and good practice guidance (e.g. CLEAPSS Hazcards & Guides) to perform an assessment of the risks and ensure the necessary steps are taken to control them, which might include the following:

Review your hazardous substance inventory and if there are materials that are no longer used or needed, then arrange to have them safely disposed of. If you can't avoid having the substances then the next step is to reduce the amounts held to the minimum practicable levels.

Handling and storage arrangements need to be tailored to the specific materials and consider issues such as security, keeping incompatibles apart, temperature and ignition source control etc. These should be supported with good housekeeping practices. Mechanisms should be established to periodically rotate stock and ensure the required storage conditions are being maintained.

Users should be trained in applying the safe systems of work and encouraged to report any shortcomings.

The RMP Risk Control Team are well-placed to assist client authorities with their health and safety risks. Support can be provided in the following ways:

- Reviewing current methods & procedures against good practice guidance and legislative requirements to provide a gap analysis and action plan to improve standards.
- Developing in-house competencies in the management of health and safety by delivering topic specific courses or more general accredited IOSH Managing Safely programmes.

To discuss any aspect of managing health and safety please contact your RMP risk control consultant or account director.

Further RMP Resources and Articles

For access to further RMP Resources you may find helpful in reducing your organisation's cost of risk, please access the [RMP Resources](#) or [RMP Articles](#) pages on our website. To join the debate follow us on our [LinkedIn](#) page. Additionally we have specific discussion groups for the [Education](#), [Emergency](#) and [Government](#) sectors.

Get in touch

For more information, please contact your Broker, RMP risk control consultant or RMP account director.

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