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| **Hot weather, the storage of chemicals and ventilationin a Science Department** |

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| Below you will find information about **storing chemicals safely in hot weather** when the school is open. However, you also need to prepare for hot weather over the summer holidays when the school is closed and there may be no staff around to take action.**Make sure your stored chemicals are safe in hot weather**.**Volatile chemicals:** (those that evaporate easily) are most at risk. Chemicals with low boiling points may evaporate sufficiently at room temperature to cause pressure to build up in the container. They should always be stored in cool conditions. **Examples (Bpt):** ethanal (20°C), ethoxyethane (35°C), pentane (36°C).**Dissolved gases:** these are solutions of gases in water. Gases are less soluble at higher temperatures so, in warm weather, the pressure will build up in the container. Ensure these chemicals are stored in cool conditions. **Examples:** concentrated (‘880’) ammonia, concentrated hydrochloric acid.**Chemicals that decompose:** Some chemicals decompose slowly to form a gas. In an unvented container, the pressure will gradually increase. Keep solutions cool to slow the decomposition. **Examples:** 100 ‘vol’ hydrogen peroxide, sodium chlorate(I) solution.**Action Plan** * Try to keep the store as cool as possible. If there is no air con in your chemical store increase ventilation if possible.
* If you have windows use blinds and store chemicals away from direct sunlight. Grey reflective blinds are suitable. Black material is unsuitable as it absorbs too much heat and warms up the room.

Ensure the ventilation system is working. A rate of minimum 2 air changes per hour, maintained 24/7, with make-up air at low level and extraction at high level, is normally sufficient to vent hazardous fumes and maintain an  * even temperature. If your store is liable to become hot, the ventilation may be deficient.
* Place bottles of volatile chemicals in water eg, in a bucket or bowl. Protect the label by keeping the water level below the label or placing the bottle in a plastic bag.
* CLEAPSS model risk assessments for the safe use of chemicals require the regular checking of stored chemicals and their containers, and for appropriate remedial action to be taken when necessary.

If you detect problems and there is a risk that fumes have built up, or you are unsure what to do, contact the CLEAPSS Helpline**for advice on 01895 251 496 (MEMBER SCHOOLS ONLY)****Summer Holidays - Action Plan** * **Arrange for the store to be kept cool.** If there is no air con in your store and you know the temperature in the store rises if the weather gets hot, **increase the ventilation if possible**.
* **Consider alternative storage arrangements -**is there is a secure, cool, well-ventilated space available, at least over the holiday period when the chemicals do not need to be accessed frequently.
* **Arrange for someone to check the store regularly**. If this will be a non-science colleague, make sure they know what to look out for and what to do if problems are spotted. Warn the colleague not to put themselves at risk. **Leave the CLEAPSS Helpline number and instructions** (including a copy of the E Hazcards and GL120 About Hazcards section E).
* **Place bottles of volatile chemicals in water** eg, in a bucket or bowl. Protect the label by keeping the water level below the label or placing the bottle in a plastic bag.
* **Take care when entering the store after a period away, particularly if the weather has been hot.**

 **Ventilation**: A rate of minimum 2 air changes per hour, maintained 24/7, with make-up air at low level and extraction at high level, is normally sufficient to vent hazardous fumes and maintain an even temperature.A ventilation engineer can not only carry out measurements but also advise on suitable systems and design, factors which are critical to effective ventilation.**Contact the CLEAPSS Helpline for further advice if necessary 01895 251 496.** Those schools who are members of CLEAPSS can access some useful resources online via the website. ***These include:***Emergency Cards - E CardsHazCardsGL246: Checking bottles in the chemical storeE233 - Chemical stocklistGL247: The shelf-life of chemicalsHandbook - Section 7 - Chemical SafetyGL308 - Ventilation in chemical stores and prep rooms a summaryBB 101: Ventilation, thermal comfort and indoor air quality 2018 |

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