

## Don't Store Osmium Tetroxide in Plastic Containers

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It is not safe to store osmium in ordinary laboratory plastic containers. Osmium penetrates polyolefin plastics (polyethylene, polypropylene) to some depth, and reacts with them, so containers made from these plastics or of polystyrene or polycarbonate with polyolefin closures are not recommended.

Osmium is usually supplied with some protective packaging and, should further security be desired, I would consider placing the glass ampoules inside polyethylene or polypropylene tubes. This would allow considerable shock protection and, if the ampoule did break, the outer container would protect against leakage for the short time required to get it to a fume cupboard. The same principle can be applied to osmium solutions prepared in glass bottles: enclosure in an outer polyethylene bottle will give shock protection and temporary containment. Also, its blackening indicates how much leakage has occurred from the supposedly closed glass container.

In this regard, we have a rule that osmium solutions are *never* stored in the laboratory refrigerator. Even when the greatest care is taken, osmium blackens the refrigerator walls and other objects in the refrigerator, indicating that vapor is escaping into the refrigerator's atmosphere. If you must store osmium at low temperatures, I recommend installing a compact refrigerator in the fume hood or in a fan-ventilated cupboard.

Further, when volatile substances are placed in a closed, unventilated space, like a refrigerator, vapor may be concentrated over periods of time. Unless there is a monitor inside the refrigerator, the first that this vapor concentration may be known is when someone gets a face full of fumes. It is not good practice to store any toxic volatile substances in a lab refrigerator, not only osmium but aldehyde fixatives and other like substances. ■

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