

Neutralization and Disposal of Osmium Tetroxide:

A 2% solution of Osmium Tetroxide can be fully neutralized by twice the volume of oil (corn oil is preferred because of its high percentage of unsaturated bonds).¹ That is to say, for every 10ml of 2% Osmium solution, 20ml of corn oil is required.

Procedure:

1. Do all work under a fume hood.
2. Pour twice the volume of corn oil into used Osmium Tetroxide solution.
3. Wait for the oil to completely turn black.
4. Test to check that complete neutralization has taken place.
(To confirm neutralization; take either a glass coverslip coated in corn oil or a piece of filter paper soaked in corn oil and suspend it over the solution - Blackening indicates OsO_4 is still present, repeat step 2.)
5. By-Product of the treatment procedure is Osmium Dioxide –Dispose through the Chemical Safety Office

References:

1. Cooper, K. Neutralization of Osmium Tetroxide in case of accidental spillage and for disposal. Bulletin of The Microscopical Society of Canada. 1988. 8:24-28
2. Lunn, G.; Sansone, E.B. Osmium Tetroxide. Destruction of Hazardous Chemicals in the Laboratory; Program Resources, Inc. Frederick, MD; pg. 211-213