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# Technetium chemistry at the University of Nevada Las Vegas

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The chemistry of technetium is being explored at the University of Nevada Las Vegas. Our goal is to investigate both the applied and fundamental aspects of technetium chemistry, with a special emphasis on synthesis, separations, and materials science. The synthetic chemistry focuses on metal-metal bonding and binary halides. Recently, two new multiply metal-metal bonded dimers and technetium tribromide and tetrabromide were prepared and characterized. These compounds were used as precursor for synthesis of low valent technetium complexes. The structure of (n-Bu4N)2Tc2Br8 was solved by single crystal XRD and its electronic structure analyzed by first principles calculations. Separation and materials chemistry is related to the nuclear industry. The separation of uranium/technetium from acidic solution, and synthesis of Tc containing waste forms have been investigated. The facilities at UNLV include modern radiochemistry laboratories where investigators can work with multi-milligram quantities of 99Tc, and analytical instrumentation dedicated for radioelement characterization and analysis.

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