



Molten Metal Technology

Quantum-CEP™

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Molten Metal Technology is an environmental technology company dedicated to changing the way society deals with waste. The company's patented technology takes waste – hazardous, non-hazardous, and radioactive – and transforms it into valuable industrial products using a molten metal bath. A commercial-scale prototype system has been operating successfully since 1993. The first commercial plants utilizing the technology will be operational in 1995.

A New Paradigm

Catalytic Extraction Processing (CEP), Molten Metal Technology's core technology, has its roots in the steel-making industry. In the mid-1980s, chemical engineers, seeking to improve the energy efficiency of steel production, discovered that molten metal has catalytic and solvent properties that break apart complex molecular bonds. This discovery was the genesis of CEP, which uses molten metal to break down compounds, such as those in hazardous waste, and reconfigure them into new, reusable materials.

Elemental Recycling

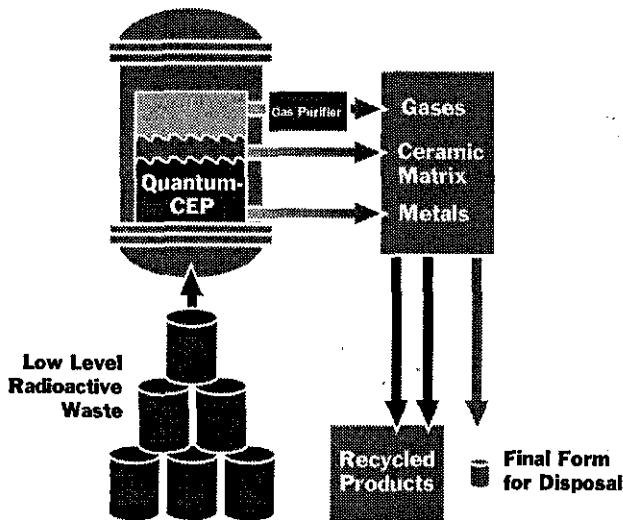
Quantum-CEP uses molten metal as a solvent and catalyst to separate waste compounds into elements, while isolating and encapsulating radioactive materials. Non-radioactive materials can be recycled.

Quantum-CEP, a related technology, reduces the volume of radioactive waste, separating radionuclides and encasing them in a stable form for disposal.

Demonstrating the Technology

To demonstrate CEP, Molten Metal Technology has built a \$25 million, commercial-scale research facility in Fall River, Massachusetts. The 86,000-square-foot facility, which was granted a precedent-setting recycling permit by the state, has shown CEP's ability to recycle virtually all waste materials – from post-consumer plastics to chlorinated solvents. Data gathered at the site led the U.S. Environmental Protection Agency (EPA) to formally recognize CEP as a Best Demonstrated Available Technology (BDAT) for a series of hazardous waste streams.

Quantum-CEP has been demonstrated at a facility in Oak Ridge, Tennessee, where the technology has been shown to reduce the volume of radioactive material and stabilize radioactive elements for final disposal, while recycling the non-radioactive components.



World-Class Customers and Partners

Molten Metal Technology has sold its technology to world-class customers such as Martin Marietta Corporation, Westinghouse, and Hoechst Celanese Corporation. With the help of its engineering and construction partner, Fluor Daniel, Molten Metal Technology's first commercial plants will come on-line in 1995.

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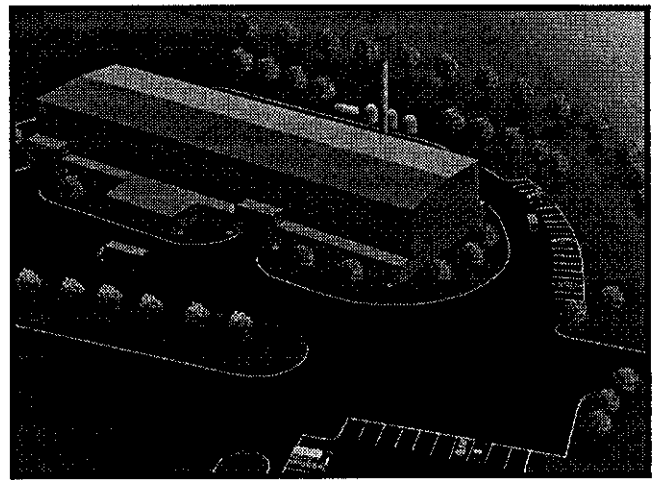
Radioactive Waste: A Key Market

The radioactive waste market is one of Molten Metal Technology's near-term focuses. To address this market, Molten Metal Technology has developed Quantum-CEP, a waste-processing technology that reduces the volume of complex radioactive materials by more than 30:1 and simple radioactive materials by as much as 1000:1.

Like CEP, Quantum-CEP uses a molten metal bath to break down waste compounds into elements and reconfigure them into safe, useful gases, ceramics, and metals. The process destroys hazardous and toxic materials, and reduces the volume of and stabilizes radioactive elements for final disposal. It is applicable to a wide variety of high-volume radioactive waste streams.



Quantum-CEP demonstration system has been operating since February, 1994.



Quantum-CEP commercial facility will be operational at SEG by mid-1995.

First Commercial Operations

Molten Metal Technology's first commercial plant will utilize Quantum-CEP to process ion exchange resins, a radioactive residue of nuclear power production. The company has formed a relationship with the world's largest processor of low-level radioactive waste, Westinghouse's Scientific Ecology Group (SEG), to build a commercial facility at SEG's Oak Ridge, Tennessee headquarters. A Quantum-CEP demonstration system, which has been operating there since early 1994, has shown how the technology reduces and stabilizes the radioactive component of the waste for final disposal. The commercial facility is under construction and will be processing ion exchange resins from commercial nuclear power plants by mid-1995.

A second Quantum-CEP facility is expected to be operational in 1995 to service the U.S. Departments of Energy and Defense. This facility will be built, owned, and operated by M4 Environmental, a limited partnership between Martin Marietta Corporation and Molten Metal Technology.
