Studsvik

inDRUM Technology

Studsvik's inDRUM technology turns problematic waste into manageable solutions.

About inDRUM

Studsvik developed and patented a thermal decomposition waste treatment technology suitable to problematic radioactive wastes typically found in the nuclear industry,including R&D activities and hospital waste. inDRUM provides unique solutions for various types of waste categories.



Treatment Solutions

- **RESIN** treats on exchange resins
- **SLUDGE** treats wet sludges
- **BITUMEN** treats bituminised waste
- **ASBESTOS** treats asbestos wastes
- **ILW FLEX** treats ILW wastes
- **HTX** treats extreme wastes
- **OPEX** treats operational and mixed wastes

Features

- **Make the waste disposable** - inDRUM removes radioactive wastes characteristics that are unacceptable for shipping, long-term storage and direct disposal.
- **Reduce the volume** - Gives volume reduction often of >90%
- **Minimal manual handling** - No requirement for sorting or opening.
- **Minimize worker radiation exposure** - Keeping workers safe at the site.

Studsvik's inDRUM

One Technology. Many Solutions.

The Process

The inDRUM process utilizes heat and a controlled environment to treat containerized radioactive wastes by means of in-container thermal treatment to remove the free liquids, destroy organics, and deactivate corrosives and reactive materials from the containers.

The resultant product is a dry, inert, inorganic waste material. Treatment is achieved without removing, handling, or sorting wastes from the container. In most applications, wastes are treated in the original waste container packages. We can prove the process using simulant materials at our demonstration facility in Sweden.



Figure 1 - inDRUM demonstration facility located at the Studsvik site in Sweden.

Validation

With over 20 years of experience testing the inDRUM process, Studsvik has developed a deep understanding and expertise in treating waste. We understand what happens to the waste during all stages of the process and where the radionuclide's are captured during treatment.

Key Benefits

- Final waste forms are acceptable for land disposal and transport
- Significant volume reduction is achieved
- Drums managed with minimal to no handling of containerized waste
- Complete destruction of nitrates and organics resulting in a stable waste form
- Removal of free liquids through evaporation
- Nitrates are thermally decomposed into gaseous NOX
- Corrosives and reactives are converted to an in-container non-hazardous oxides or carbonate compounds
- Sealed containers (i.e., aerosol and paint cans) are breached

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