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Deseret Chemical Depot

Heel Transfer System

Workers at the Tooele Chemical Agent Disposal Facility (TOCDF) designed the Heel Transfer System (HTS) to effectively and efficiently deal with mustard bulk containers that contain excessive sediment, also known as heel. The sediment is the result of degradation of the mustard agent after many years of storage. The HTS reduces the size and weight of the heel so the mustard bulk containers can be processed through the Metal Parts Furnace (MPF) in compliance with the TOCDF’s operating permit, which limits the bulk container’s weight to 630 pounds.



Using a warm-water high-pressure spray, the Heel Transfer System breaks down built up sediment, also known as heel, inside a mustard agent-filled bulk container.

For more information,
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The HTS uses a high-pressure warm-water spray to break up and dissolve a portion of the heel so it can be transferred from the original bulk container (called the “donor”) to an empty bulk container (referred to as the “transfer”).

The HTS is located in the facility’s munitions processing bay. Here, the donor bulk container is punched to allow access to liquid agent, which is drained and sent to a collection vessel until it is destroyed in the liquid incinerator. After the liquid agent is drained, the donor bulk container is positioned under a spray wand, which is lowered into the bulk container to spray the heel with high pressure warm water. After the spray cycle is complete, the spray wand is retracted and the donor bulk container is positioned under a second drain tube. The drain tube is then lowered into the donor bulk container to transport the rinsate (liquid generated from spraying) to the transfer bulk container.

Once the spraying and draining operation is complete, the donor bulk container is punched two more times to allow for proper combustion of the

remaining material when it is placed in the MPF. Both the donor and transfer bulk containers are processed through the MPF to destroy mustard agent.

The HTS requires approximately one pound of warm water to break up and dissolve two pounds of heel. After adding a sufficient amount of water, enough liquid is pumped from the donor to the transfer bulk container so that each container’s contents weigh less than 630 pounds. All processing operations, including the HTS, are controlled remotely by highly trained workers.

Along with the TOCDF, the Umatilla Chemical Agent Disposal Facility is also utilizing the HTS to destroy its stockpile of high-heel mustard bulk containers. Chem demil sites in Arkansas and Alabama are considering using the HTS as well.

The TOCDF, located 20 miles south of Tooele, Utah, began operations in August 1996. Workers have safely destroyed the entire stockpile of GB and VX nerve agent. Elimination of mustard agent and munitions is the last major stockpile destruction campaign at DCD.