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Nuclide distribution in the metal recycling process

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The Studsvik metal melting facility has been in operation since 1987 for segmentation, decontamination and melting as well as recycling of free releasable metals, but also for conditioning of the secondary waste and metals treated for volume reduction only. By using the Studsvik scrap metal processing facility thousands of tons of metallic low level waste has been annually processed.

This paper gives an overview of the nuclide distribution for material that has been treated, illustrating differences between different waste origins, properties of the objects and its contamination as well as between different metals.

To allow that the metals after treatment can be subject for free release the regulatory framework and current operating licenses requires validated processes. Thanks to this the knowledge about the nuclide distribution in the processes is extensive.

Studsvik has collected all data for the material treated over the years in a data base, and the paper gives examples of how the nuclides will be distributed through the metal recycling process, allowing the possibility to predict the nuclide content in the metal ingots as well as in the secondary waste that needs to be conditioned as radioactive waste for disposal.

The paper also compares and discusses the nuclide distribution with literature data on the topic.