



Radioactive Contamination (RaC): A major issue in steel/foundry industry

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Radioactive Contamination (RaC) in recycled steel and foundry industry is a serious issue today to be addressed by this industry.

In the recent years, low level contamination cases have been reported. In fact, Nucleonix Systems analysed quite few of these samples and found low traces of Co-60 contamination. To address these above issues and find solution to the above problems faced by the steel industry, Nucleonix Systems with vast design experience in Nuclear Instrumentation, has developed a package of products to meet the steel industry's demand to check/inspect their incoming scrap metal and also their intermediate/end products for Radioactive Contamination (RaC) in different situations. Nucleonix Systems has studied some of the export-rejected contaminated samples as part of this exercise to offer best possible product

design for Radioactive Contamination (RaC) measurement to the steel industry.

In addition automotive/engineering component manufacturers who use billets, bars, rods, flats or casting from these manufacturers also need to address these RaC issues. Laws in EU, UK, USA and Japan have set certain limits, above which exporter's consignments are bound to be rejected, leading to embarrassment, huge monetary losses and damage to reputation.

Exports from India are growing rapidly and it is essential for every exporter to have equipments to detect and measure RaC in their raw materials, intermediates, products and end products. In fact, if they can measure RaC in their products and certify (self certification) as part of their internal Quality Assurance (QA) programme to the importer, it will be a good step.

Before we go into more details on this subject it may be good to have some understanding on what is Radioactive Contamination (RaC) and how it can happen.

Radioactive Contamination (RaC) can be defined as uncontrolled distribution of radioactive material in a given environment/material. Radioactive contamination in steel/foundry is due to the accidental incorporation of radioactive material into the scrap metal chain supply system. There are a lot of radioactive sources (industrial and medical), used for industrial gauging applications and in medical systems in cancer hospitals. When these sources are disposed illegally (not following the Atomic Energy Regulatory Board guidelines) it is likely that they come into scrap metal supply chain system, steel/foundry mills who own smelting furnaces buy the scrap metal from these scrap dealers, leading



Person checking for radioactive contamination using Rad check meter with external probe



Person checking for radioactive contamination using Rad check meter with internal Detector

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to radioactive contamination of the end products made from the ingots processed through these smelting furnaces.

Nucleonix Systems has emerged as the first company to have contributed significantly and addressed the issues relating to Radioactive Contamination (RaC) in steel industry in India.

Radioactive contamination (RaC) inspection systems/ products/services for steel industry from Nucleonix systems include the following.

- Rad Check Meter (Internal detector) – RC705I
- Rad Check Meter (External detector probe) – RC705E
- Radioactive Contamination Analyzer (Bq/gm system) – RA 1006
- Package Monitoring System – PMS

1009

- Truck / Container Monitoring System – TR1021

- Steel Sample Analysis Services for RaC Measurement

- RaC measurement services at site

Products offered for inspection of radioactive contamination in steel industry meet the requirements at different stages of the production cycle. These are useful for inspection of inputs such as scrap metal and also semi-finished raw materials and finished products in different forms such as billets, rods, machined parts, castings, forgings, automotive components etc.