

## Multi-purpose electronic seal with passive transponder

### Description

The present invention relates to the control and traceability of products or materials requiring special security measures, such as nuclear materials. The challenge was to propose a reliable identification system for a low production and control costs. The innovative solution consists in utilising passive electronic transponders containing a numerical code embedded in two capsules. These transponders can be remotely interrogated on-site and an elaborated seal system allows controlling integrity of the seals.

Once the containers sealed, the transponders are activated at a frequency of 134.2 KHz with the help of radiofrequency module. The code from the transponders is sent back to the reader and correlated with a database containing information about the container (place and date of sealing, inspector in charge ...). The utilisation of programmable or encrypted transponders is possible.

### Innovative aspects and main advantages

- Identity reading without seal destruction or alteration
- On-site control without removal or displacement of the container
- Mobile reading device
- Information stored on a database
- Ease of correlation of data
- Encrypted identity
- Low controlling and production cost



View of the seal assembled

### Areas of application

- Transport industry
- Storage industry
- Nuclear inspections
- Nuclear and atomic agencies
- Nuclear and atomic companies

### Stages of development

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Patent granted US6888241  
EP99402256.4  
CA2384673  
Patent Pending JP NO

Technology is mature

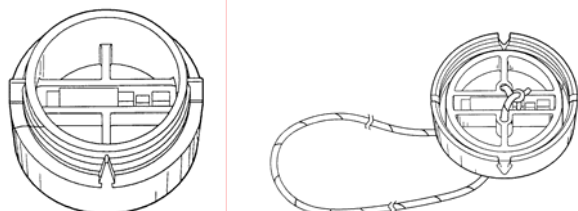
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Schematic view of the two components of the seal