Composite Scintillation Materials

for various radiation detection and imaging solutions

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Company

- Founded 2012, located in Helsinki / Finland
- Innovative solutions for environment monitoring and industrial imaging

FinEnviTech products

- Composite scintillation materials (based on chalcogenides, tungstates, alkali halides, oxide and cerium-doped scintillation crystals)
- Sensitive elements, detection and imaging systems

FinEnviTech offers

- Individual approach and extremely effective solutions for X-ray, alpha-, gamma- and neutron radiation detection and imaging
Different kinds of scintillation crystals

Chalcogenide crystals:
- ZnSe(Te)
- ZnS(Ag)

Tungstate crystals:
- CaWO₄
- CdWO₄
- ZnWO₄
- PbWO₄

Lutetium and Gadolinium containing crystals:
- GSO(Ce)
- LSO(Ce)
- LGSO(Ce)

Alkali halide crystals:
- CsI(Tl)
- NaI(Tl)

New Cerium-doped scintillators:
- GAAG(Ce)
- GFAG(Ce)
- La-GPS(Ce)
Major disadvantages of the scintillation single crystals:

- limited size
- inhomogeneity of scintillation characteristics as the result of activator segregation
- low reproducibility of scintillation performance due to the lack of control over crystal growth
Major advantages of the composite scintillation materials:

• detector size is technically not limited
• high homogeneity of scintillation performance due to special manufacturing process
• option to create new tailor-made functional materials by combining of different scintillation media
• improved mechanical and structural properties in comparison with single crystals
• low cost
Composite scintillation elements and panels for X-Ray and Alpha-Radiation

Composite scintillation panel for X-Ray radiation (dimensions 180×180×1 mm³)

Composite scintillation elements for X-Ray radiation (dimensions 101.65×3.55×1 mm³)

Composite scintillation panel for Alpha particles (dimensions 25×25 mm²)
Composite Scintillation Elements for X-Ray Radiation

Flexibility demonstration of CSM elements for detection of X-ray radiation. General view (right picture) and X-ray view (left picture).
X-ray image of the biological test object (chicken wing) obtained by using a Composite Scintillation Panel.

Resolution up to 8 lp/mm

X-ray images of the inorganic test objects (microchips, stainless steel plate 0.3 mm in thickness, metal mesh) obtained by using a Composite Scintillation Panel.
Non-destructive testing (NDT)
- Customs controls
- Control of baggage and postal parcels
- Quality control of welds, composite products etc.

In-vivo visualization systems based on irradiation by ionizing radiation
- X-Ray imaging
- Neutron imaging

Security systems for detecting illegal nuclear materials transportation
- New generation of highly efficient compact detection systems for fast neutron & gamma radiation detection

Medical tomography and radiography
- PET
- SPECT
- CT
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Thanks for Attention