NORM X Symposium
May 9th till 13th, 2022 in the city of Utrecht, Netherlands
https://normx2022.com/
Theme NORM X
25 years of NORM Symposia
Future: Residues Applied in a Circular Economy

Phosphor gypsum applied in ceramic panels
*Courtesy of IFA*

*Winter chick pea, grown on Phosphor gypsum fertilizer*
*Courtesy of OCP Group, Morocco*

Slag from thermal phosphorus production applied in dyke construction
*Courtesy of Project Organisation Water Safety (NL)*
NORM X Symposium and Cooperating Organisations

• international and regional cooperating organisations are:
  ➢ IAEA
  ➢ EC
  ➢ ICRP
  ➢ ILO
  ➢ IRPA
  ➢ UNSCEAR
  ➢ IAEA ENVIRONET
  ➢ NVS (Dutch Society for Radiation Protection)
  ➢ ENA (European NORM Association)
  ➢ SHARE/RICOMET (Social science and Humanities in ionising radiation REsearch)
  ➢ ANVS (Dutch Authority for Nuclear Safety and Radiation Protection)
  ➢ EPA (US Environmental Protection Agency)
  ➢ ARPANSA (Australian Radiation Protection and Nuclear Safety Agency)
  ➢ CRCPD (US Conference of Radiation Control Program Directors)

• Associated events are:
  ➢ IAEA ENVIRONET NORM project
  ➢ ENA
  ➢ SHARE/RICOMET
NORM X, Program, Main Area’s – Invited speakers

Area 1: 25 years of NORM Regulation; Peter Görts (ANVS, Netherlands)
Area 2: Fundamental and practical implementation aspects of NORM regulations; Jelena Mrdakovic-Popic (DSA, Norway), Philip Egidi (US EPA), Miroslav Pinak (IAEA)
Area 3: Current and future challenges – NORM in a Circular Economy; Julian Hilton (Aleff Group), Analia Canoba (ARN, Argentina)
Area 4: Environmental aspects of NORM; Horst Monken-Fernandes (IAEA)
Area 5: NORM impacted industries; Ulric Schwela (Ta-Nb Int. Study Centre, UK)
Area 6: NORM sampling and metrology; Luis Ernesto Matta (IRD, Brasil)
Area 7: Stakeholder engagement and public communication; David Allard (NJ DEP, US), Yevgeniya Tomkiv (NMBU, Norway)
Area 8: Research and development; Wouter Schroeyers (University of Hasselt, Belgium)
Area 9: NORM Transport; Eric H. Weber (IAEA)
A sneak preview of the content of some invited presentations

• **Area 2: Jelena Mrdakovic-Popic.** NORM residues & aspects of circular economy – an overview from European HERCA\(^1\) perspective, Regarding the intensified international developments and tendencies to make global eco-effectiveness with transition from a linear towards a circular economy, an analysis of HERCA Member states regulatory practice on NORM residues and waste issues, together ..........

• **Area 3: Analia Canoba.** Here is a part of the essence of her presentation: It is necessary to have a clear regulatory framework for applying a circular economy and some adaptations may be necessary. Graded approach in regulation is paramount. Practical and not contradictory regulatory frameworks should be developed to achieve a circular economy, applying proper waste management practices is fundamental to know the inventory of industries. Stakeholders and particularly the public ..........

\(^1\)HERCA – (association of the) Heads of the European Radiation Protection Authorities
NORM X, Program, Sub-specialities per Main Area

• Protection of workers, public and environment
• Legislation and regulations
• Education & Training (capacity building)
• Radon / Thoron
• Mining of ores including U and Th
• Rare earths-, Niobium-, Tantalum industry
• Zircon- and zirconia-, Titaniumdioxide industry
• Phosphate and phosphogypsum
• Oil and Gas production and geothermal industry (incl. liquid NORM)
• Coal combustion, cement-, building- and construction materials industry
• Decommissioning and Environmental remediation
• NORM Residue-and Waste management
• Miscellaneous
Refresher courses

The refresher courses are broadly grouped and scheduled into three main topics:

1. Building an Operation Radiation Protection Program
   A. **Tuesday 10 May.** Regulatory Framework for the Safe Management of NORM - from Regulations to implementation, “international recommendations and European requirements”. Lecturers: **Burçin Okyar** (IAEA), **Stefan Mundigl** (EC).

   B. **Wednesday 11 May.** The application of the ICRP system to NORM in industrial processes: from Publication 103 to 142. Lecturers: **Analia Canoba** (ARN, Argentina) and **Jean-François Lecomte** (IRSN, France).

   C. **Thursday 12 May.** From fundamental safety principles to operational radiation protection programs. Lecturer: **Konstatinos Karfopoulus** (AEC, Greece)
2. Public exposure from NORM discharges, assessment of environmental risks and the communication hereon.

A. Tuesday 10 May. Assessing public exposure from NORM-discharges - key parameters and simple approaches to dose estimates. Lecturer: Christian Kunze (IAF-Radioökologie, Germany). Organized in cooperation with ENA.

B. Wednesday 11 May. A regulators perspective on the assessment of environmental NORM risk (incl. experiences with risk models from a user’s perspective). Lecturer: Cameron Lawrence (ARPANSA, Australia).

C. Thursday 12 May. Risk and health communication about NORM: From theory to practice. Lecturer: Tanja Perko (SCK•CEN, Belgium). Organized in cooperation with the SHARE/Ricomet.
3. **NORM Metrology and sampling, NORM decommission and dismantling and Safe management of waste.**

A. **Tuesday 10 May.** NORM metrology and sampling. Lecturer: **Rafael García-Tenorio** (Univ of Seville, Spain). Organized in cooperation with **ENA**.

B. **Wednesday 11 May.** Decommissioning and dismantling of NORM sites: Case studies of oil/gas and water treatment facilities. Lecturers: **Mette Nilson** (DSA, Norway) and **James McCullough** (DEP, New Jersey).

C. **Thursday 12 May.** Workshop on the safe management of NORM residues. Lecturer: **Zhiwen Fan** (IAEA).
Free participation to all refresher courses as participant of NORM X Symposium

Accreditation of all courses will be sought by

**ANVS** (Dutch Authority for Nuclear Safety and Radiation Protection) and

**AAHP** (American Academy of Health Physics)

See at [https://normx2022.com/refresher-courses/](https://normx2022.com/refresher-courses/) for more details e.g. learning objectives, summary and literature
The NORM X organization as well as all cooperating organizations are encouraging you to send in an abstract.

The deadline for sending in an abstract has been extended to: **1st March 2022**

You will be informed about the acceptance of your abstract and to send in a full paper is:

- **15th March 2022**
- **15th April 2022**

You can apply for an oral presentation, a poster pitch or a poster presentation. Each oral presentation is scheduled for 25 min (20 min presentation, 5 min Q & A).

Poster (pitch) presentation, you will be requested to send a digital copy of your poster*. The NORM X organization will have these posters printed (*free of charge*) and take care that your poster will be placed at the poster board.

*) poster should be of high digital resolution, so that it may be printed on A0 (840 x 1188 mm) format paper.
Location NORM X: Utrecht, Netherlands

• Capital city of the Province Utrecht
• The city celebrates in 2022 its 900th anniversary
Location NORM X: Utrecht, Jaarbeurs (conference centre)

Supernova meeting area

- Plenary room 500 persons
- Two conference rooms of 100 persons
Send in your abstract and register

www.normx2022.com

Registration: Early bird – until February 1st
Normal – until April 1st
Last minute – after April 1st

info@normx2022.com

25 YEARS OF NORM SYMPOSIA
FUTURE: RESIDUES APPLIED IN A CIRCULAR ECONOMY

10th International Symposium on Naturally Occurring Radioactive Material
Utrecht, The Netherlands, May 9 - 13, 2022
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