

EMIT Member Update: NPL

Spring Meeting 2018 – Dayton, Ohio

10th – 12th April 2018



BSI 8905:2011 - “Sustainability”

Framework for the assessment of the sustainable use of materials. Guidance

BS 8905 is a British Standard that provides a framework for the concepts, techniques, tools and methodologies that can be used to support decisions surrounding the **sustainable use of materials**.

Content

- a) the social, economic and environmental aspects throughout the material lifecycle, covering:
- b) how to balance these aspects against stakeholder priorities in terms of sustainable development;
- c) guidance on the use of decision support tools to assess the relative sustainability of material choice; and
- d) the importance of data quality when carrying out a sustainability assessment.

BSI 8905:2011 - “Sustainability”

Framework for the assessment of the sustainable use of materials. Guidance

a) the social, economic and environmental aspects throughout the material lifecycle, covering:

1. Sourcing of materials;
2. Conversion of materials into products;
3. Performance of a product over its functional lifetime;
4. End of life of the product and either the reuse, remanufacture, recycling or disposal of the product; and
5. End of life of a material and either the reuse, remanufacture, recycling or disposal of the material, with particular emphasis on social performance in the use phase of a product life and environmental performance over the full life cycle, and taking into consideration the longer term and local economic issues;

BSI 8905:2011 - “Case Studies”

Aggregate Industries

Read how Aggregate Industries used BS 8905 to gain a better understanding of sustainability issues throughout the product life cycle. [Download](#)

Nissan and Lexus

Find out how Nissan and Lexus used BS 8905 to get a 360 degree view of sustainability issues. [Download](#)

PEC Partnership Ltd

Discover how a packaging manufacturer used BS 8905 to begin tackling the sustainability challenges faced by the packaging sector. [Download](#)

RE: Facto

Read how BS 8905 helped textiles company RE: Facto strengthen it's business case for sustainability. [Download](#)

BSI 8001:2017 - “Circular Economy”

Framework for implementing the principles of the circular economy in organizations – Guide

Foreword

Introduction

1 Scope

2 Terms and definitions

3 The circular economy and its relevance to organizations

4 Principles of the circular economy

5 Putting the principles of the circular economy into practice

6 Guidance on circular business models

7 Guidance on circular economy issues and considerations

Annex A Evaluating implementation of the principles of the circular economy

Annex B Potential circular design strategies and checklist

Annex C Case studies

Bibliography

Case study – European Commission

EC Mandated -Technical Specification - CEN TC352/WG3/PG1

Proposed title:

Nanotechnologies – Guidelines for Life Cycle Assessment –
Application of EN ISO 14044 to Manufactured Nanomaterials

Current scope:

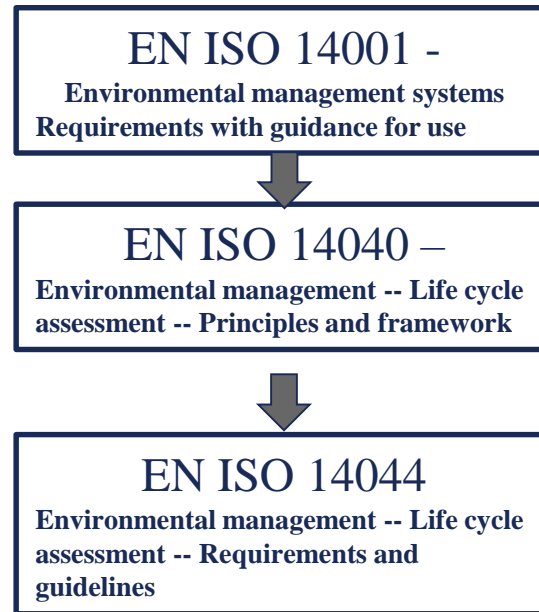
This Technical Specification provides guidelines for application of Life Cycle Assessments (LCA) of specific relevance to manufactured nanomaterials, including their use in other products, according to EN ISO 14044: 2006. It does not cover incidentally nanomaterials.

1st and 2nd TC ballots approval

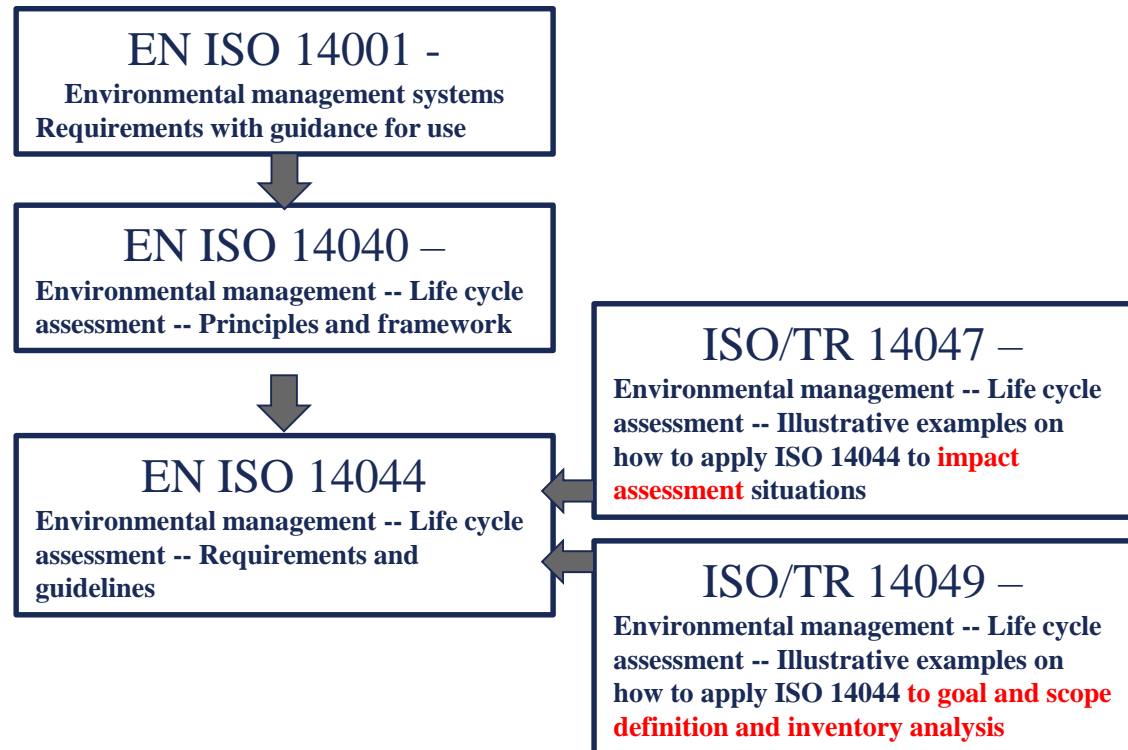
Final TS ballot underway (YES/NO vote only)

Publication expected in 2018

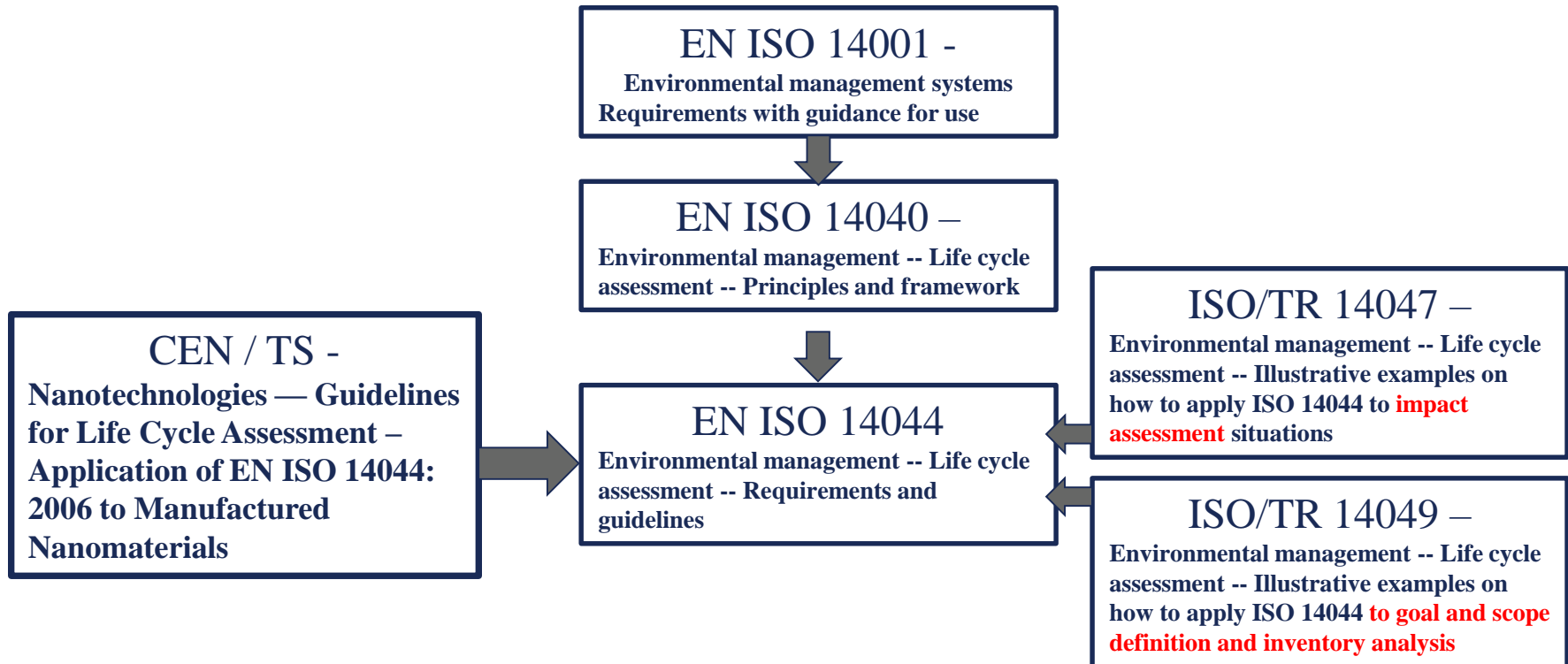
Application of LCA to Nanomaterials



Application of LCA to Nanomaterials



Application of LCA to Nanomaterials



Other standards supporting use of ISO 14044

ISO/TR 14047: 2012, Environmental management -- Life cycle assessment -- Illustrative examples on how to apply EN ISO 14044 to impact assessment situations

ISO/TR 14049: 2012, Environmental management -- Life cycle assessment -- Illustrative examples on how to apply EN ISO 14044 to goal and scope definition and inventory analysis

PD ISO/TS 14071, Environmental management -- Life cycle assessment – Critical Review processes and reviewer competencies: Additional requirements and guidelines to ISO 14044:2016

International Metrology Reference Resource (IRMM)

BIPM /NIST - Reference Data at NMIs Initiative

1. Led by Bob Hanisch (NIST) based on reference data held by NMIs (mainly materials based).
2. Several teleconference + meeting at BIPM, Paris
3. Director level attendance from several NMIs – BIPM, NIST, NPL, NRC, LNE, KRISS, NIMJ
4. Tiger Team that developed demo included NIST, NPL, BAM and NIMJ
5. Presentation at NMI Directors meeting at BIPM in October 2106 and 2017, including demo of current registry
6. Based on Dublin Core Metadata Terms/ OAI-PMH
7. Multiple assessment criteria to give guidance on data quality (c.f. gold, silver and bronze grades previously used by GDS)

IRMM - Data descriptors

- Did the measurements make use of equipment set with standard calibrations, traceable to recognized primary standards and SI units?
- Was a recognized standard method used to obtain the measurements?
- Do the reported values include a full GUM-based characterization of uncertainties?
- Are the reported values based on multi-site (e.g. round-robin) measurements?
- Are the reported values accompanied by a description of the stability and/or maturity of the samples measured?
- Were the measurements conducted on certified reference materials (as defined by VIM3)?
- Are the reported values accompanied by documentation of certification, a review report, or a reference to a peer-reviewed open-access paper describing the quality of the data?
- Are the reported values compiled through a critical review of values reported in the peer-reviewed literature?)

International vocabulary of metrology – Basic and general concepts and associated terms (3rd Edition)

CRM - reference material, accompanied by documentation issued by an authoritative body and providing one or more specified property values with associated uncertainties and traceabilities, using valid procedures

EXAMPLE Human serum with assigned **quantity value** for the concentration of cholesterol and associated **measurement uncertainty** stated in an accompanying certificate, used as a **calibrator** or **measurement trueness** control material.

NOTE 1 ‘Documentation’ is given in the form of a ‘certificate’ (see ISO Guide 31:2000).

NOTE 2 Procedures for the production and certification of certified reference materials are given, e.g. in ISO Guide 34 and ISO Guide 35.

NOTE 3 In this definition, “uncertainty” covers both ‘measurement uncertainty’ and ‘uncertainty associated with the value of a **nominal property**’, such as for identity and sequence. “Traceability” covers both ‘**metrological traceability** of a quantity value’ and ‘traceability of a nominal property value’.

NOTE 4 Specified quantity values of certified reference materials require metrological traceability with associated measurement uncertainty (Accred. Qual. Assur.:2006) [45].

NOTE 5 ISO/REMCO has an analogous definition (Accred. Qual. Assur.:2006) [45] but uses the modifiers “metrological” and “metrologically” to refer to both quantity and nominal property.

Improving Reproducibility in Research: The Role of Measurement Science

1-3 May 2018 - NPL Teddington

The goal of this workshop is to bring together experts from the measurement and wider research communities to understand the issues and to explore how good measurement practice and principles can foster confidence in research findings; including how we can tackle the challenge posed by increasing data volumes in both industry and research.

Free registration at:

<https://www.regonline.co.uk/IRR2018>

Case studies - National

Ham and Teddington Hydro – Archimedes Screw Installation

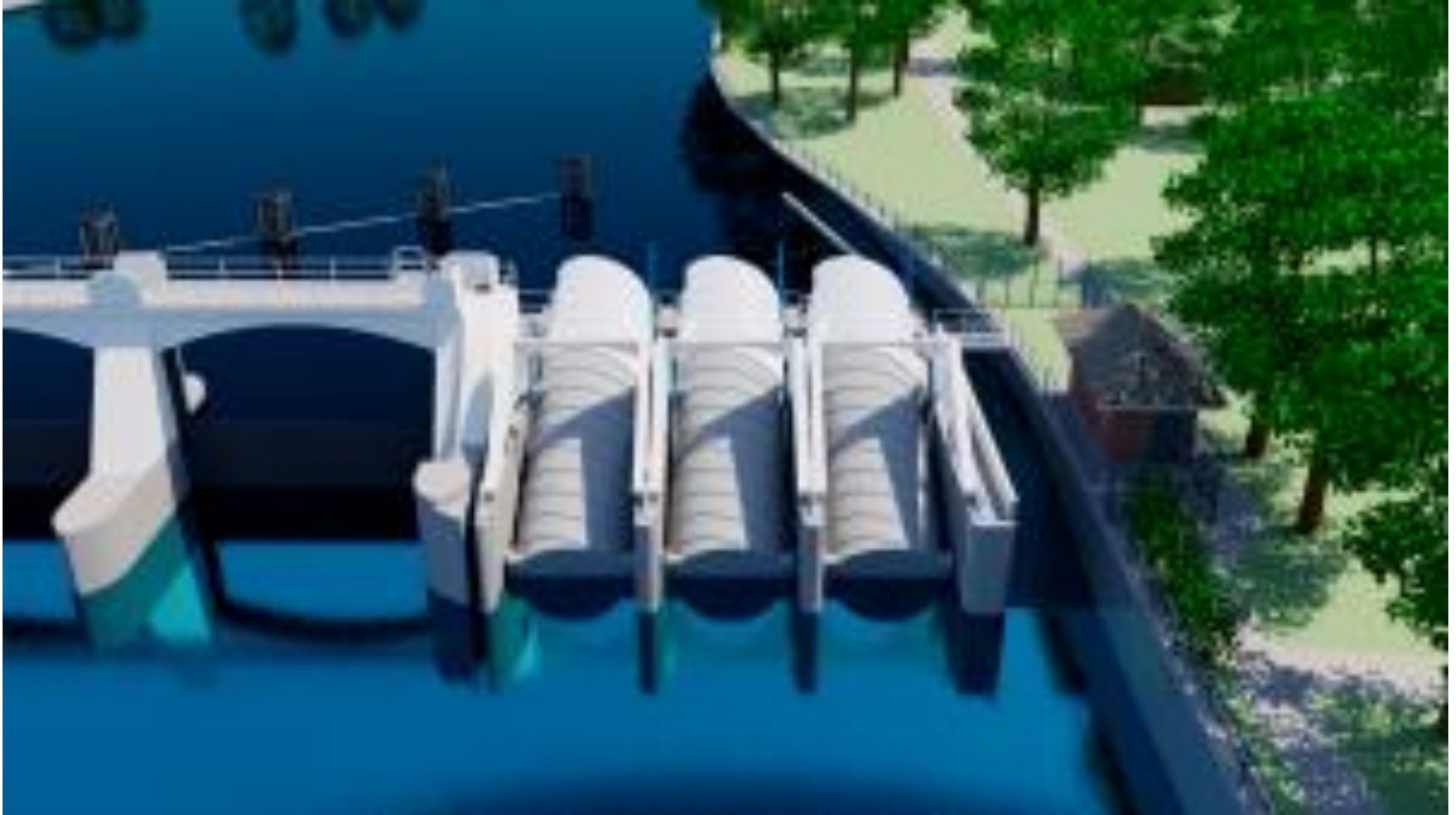
1. Revised application to reduce physical size, to reduce noise and to reduce flooding risk - through lifting screws
2. 204 public comments against, 94 for support, 5 general
3. 67% of Teddington comments were against, including my son-in-law's parents who work for Lensbury Hotel!
4. However, project is approved and gains planning permission
5. £700k of £3500k needed raised by individual investors
6. Lensbury Hotel requested a judicial review, which successfully overturned planning permission
7. Project team very quiet – not sure what happens next!

Thank you

Case studies



Case studies



Case studies

Revised side elevation

Scale = 1:100
A3 Paper

Comparison - Original Planning Side Elevation Vs New

