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# Labels and Relevant Standardisation Work in Europe

NILU NORMAN Workshop, June 8-9, 2015, Kjeller, Norway

# SINTEF Technical Approvals of building products

- Technical performance
- Health and environment:
  - Content of hazardous chemicals
  - Waste management at end of life
  - Release of hazardous chemicals to soil and water, including drinking water
  - Release of hazardous chemicals to indoor air



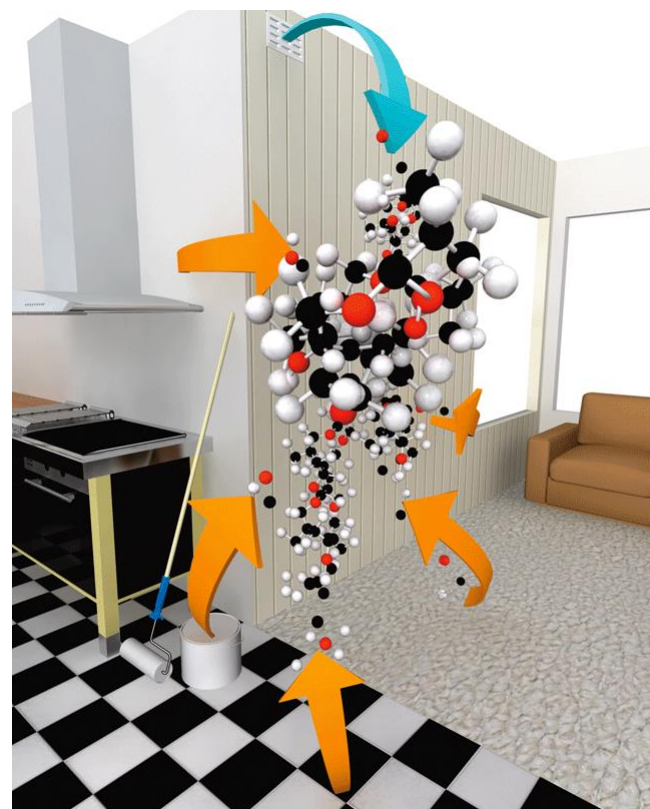
Construction Products Regulation



# Standardisation – important developments in Europe

Emissions of volatile organic compounds from building materials:

- Measurement techniques
- Evaluation criteria

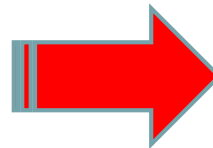


SINTEF Building Design Guides, [bks.byggforsk.no](http://bks.byggforsk.no)

# Measurement techniques



The screenshot shows the CEN website header with the logo and the text "European Committee for Standardization". Below the header is a navigation bar with four buttons: "CEN COMMUNITY", "TECHNICAL BODIES", "STANDARDS EVOLUTION AND FORECAST", and "SEARCH STANDARDS". Under the "TECHNICAL BODIES" button, there is a link "Technical Bodies > CEN/TC 351". Below this link, the text "CEN/TC 351 - Construction Products - Assessment of release of dangerous substances" is displayed.



The image shows the cover of a technical specification document. At the top left is the logo for "standard norge". To the right of the logo, the text reads "Teknisk spesifikasjon" and "CEN/TS 16516:2013". Below this, there are several horizontal lines representing a title or subtitle. In the bottom right corner, the text "ICS 13.040.20; 91.100.01" and "Språk: Engelsk" is visible. At the bottom left, the title of the document is written in bold: "Byggevarer", "Vurdering av frigjøring av farlige stoffer", and "Bestemmelse av utslipp til inneluft". Below the title, there is a list of keywords: "Construction products", "Assessment of release of dangerous substances", and "Determination of emissions into indoor air".

# prEN 16516 – Emissions into Indoor Air

## prEN 16516:

- Test scenarios based on a "European Reference Room"
- The operation of test chambers: based on ISO 16000-9/EN 717-1 (formaldehyde from wood-based panels)
- Analysis of emitted compounds: based on ISO 16000-3(formaldehyde and other carbonyl compounds) /ISO 16000-6 (VOC)
- Calculations
- Reporting procedure

## European Standard Reference Room:

Parameter	Value
Temperature	23 °C
Relative humidity	50 %
Ventilation rate	0.5 air changes per hour
Dimensions	3 x 4 m floor area 2.5 m floor-ceiling 1 door, 1 window
Volume	30 m <sup>3</sup>
Loading factors:	
Walls	1 m <sup>2</sup> /m <sup>3</sup>
Floor or ceiling	0.4 m <sup>2</sup> /m <sup>3</sup>
Door or window (small surface)	0.05 m <sup>2</sup> /m <sup>3</sup>
Sealants (very small surfaces)	0.007 m <sup>2</sup> /m <sup>3</sup>

# Evaluation criteria

- Limit values for specific compounds
  - Lowest Concentration of Interest – LCI - [http://www.eu-lci.org/EU-LCI\\_Website/Home.html](http://www.eu-lci.org/EU-LCI_Website/Home.html)
- Limit values for groups of compounds
  - Total Volatile Organic Compounds –TVOC (Sum C6 to C16)
  - Total Semivolatile Organic Compounds – TSVOC (Sum C16 to C22)

Emission labels, standards and regulatory work tend to specify a mix of these two approaches!

EUROPEAN COLLABORATIVE ACTION

URBAN AIR, INDOOR ENVIRONMENT AND HUMAN EXPOSURE

Environment and Quality of Life

Report No 29

**Harmonisation framework for health based evaluation of indoor emissions from construction products in the European Union using the EU-LCI concept**



JOINT RESEARCH CENTRE  
Institute for Health and Consumer Protection  
Chemical Assessment and Testing Unit

2013

EUR 26168 EN

# Evaluation criteria – TVOC and TSVOC thresholds

No harmonised criteria for TVOC or TSVOC in emissions from construction products, but limit values can be found in...

- Indoor environment standards
  - NS-EN 15251 – Norwegian national appendix from 2014
  - Upcoming prEN 16798-1
- National regulations: France, Germany and Belgium
- Criteria for both emission labels and other labelling schemes - examples:
  - GEV Emicode
  - M1 Emission Class for Building Material
  - Svanen
  - Ecolabel
  - Der Blaue Engel
  - Natureplus
  - SINTEF Technical Approvals

# EOTA classification of construction product emissions

Based on

- German AgBB evaluation scheme
- French regulations on emission classification

Incorporating

- TVOC and TSVOC thresholds
- LCI-values
- Substances of concern – limit values
- Formaldehyde – limit values
- Calculated R-value threshold

TVOC main classes	optional color scheme	sub-classes for Formaldehyde emissions			
A	Green				
B	Light Green				
C	Yellow	f1	f2	f3	fn
D	Orange	← increasing emission →			
E	Red				
NPD : no Performance declared					

## Harmonized EU VOC-Classes



Declaration Format for VOC Emissions  
of Construction Products used  
in the Indoor Environment

This Proposal is based on a Presentation to the EGDS Working Group



# What is missing?

- Harmonised European classification and labelling scheme for emissions to indoor air
- Methods for judging emissions of compounds that cannot be measured using prEN 16516, e.g.
  - Semi Volatile Compounds > C22
  - Particulate Organic Matter (POM)
- Methods for judging secondary emissions



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