



The Danish Indoor Climate Label (DICL)

- *Introduction to the Danish-Norwegian Concept*

Thomas Witterseh, secretary to DICL



Scope and Origin of DICL

- Founded by the Ministry of Housing in 1993 to improve the indoor air quality
- A voluntary and independent labelling scheme
- Building products, equipment and furniture
- Labelling licenses since 1995

Scientific and Organisational Basis



- Scientifically based on works by
 - Danish Building Research Institute
 - National Research Centre for the Working Environment
 - Danish Technological Institute
- Recognised and supported by
 - Confederation and Danish Industries
 - Danish Construction Association
 - Danish Society of Engineers
 - Danish Association of Constructing Architects

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Labelling Criteria



- VOC emissions
 - chemical analysis and sensory evaluation
- Release of particles, including fibres
- Indoor-related guidelines
 - handling, transport, storage, design, construction/installation, cleaning and maintenance

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Major Features



- Monitoring of single VOC's
- Converted into concentration in standard room
- Chemical analysis
 - Concentrations below half the threshold for irritation for all individual compounds
 - No substances indicate an increasing emission rate
 - No carcinogenic emissions (WHO) (formaldehyde excluded)
- Sensory evaluation
 - Acceptability > 0 (= just acceptable)
 - Odour intensity < 2 (= moderate odour)

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Communication and Use



- Test results → TIME VALUE
composed of the higher of time values determined by :
 - chemical analysis
 - sensory evaluationrounded up to whole 10 days
lower or equal to the maximum time value for product area
- Manufacturers: A tool to product development
- Building designers and users: A tool to design buildings and choose products in respect of indoor environment

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Standards



- General Labelling Criteria
- Standard test method for determination of indoor relevant time value by chemical analysis and sensory evaluation
- Standard test method for determination of release of particles
- Standard test method for determination of release of particles

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Organisation



- Labelling Body affiliated to Danish Technological Institute
- Independent and not-for-profit
- Labelling Board
 - Confederation of Danish Industries (1)
 - Danish Construction Association (1)
 - Licence holders (3)
 - Professional building owners (1)
 - Designers/specifiers/consultants (1)
 - Danish Technological Institute (1)

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Practical experience - manufacturer



- Product development
 - Substitution of materials and components
 - Design to minimise emissions



HTH Kitchen
Varnishes and paints substituted
Edges and holes sealed

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Practical experience – building owner



- Contractual requirements for manufacturer:
 - Test according to DICL
 - Emissions completed (time value) before delivery



DR – Danish Broadcasting Corporation –
New headquarters:
1800 workplaces from DUBA/B8

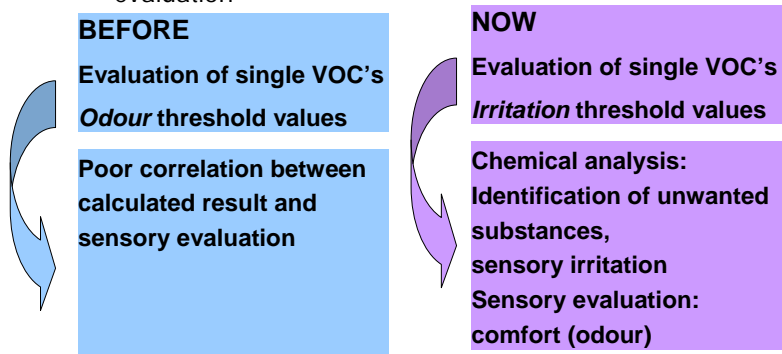
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Practical experience - labelling scheme



- Chemical analysis and sensory evaluation of emissions
 - Poor correlation between calculated result and sensory evaluation



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Practical experience - laboratory



- Labelling criteria exclude high emission products
 - Natural products are not necessarily indoor air quality friendly



Emission Laboratory at DTI
Sensory evaluation of product

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DICL – ECA-18 proposal



DICL

Testing after 3 – 10 – 28 days
Individual VOC's
No TVOC measurement
Threshold for irritation
Sensory evaluation
Founded and in use since 1993

ECA-18

Testing after 1 – 3 – 28 days
Individual VOC's
TVOC measurement
LCI
No Sensory evaluation method
Proposal