

MODULE 2

Strategic planning phase

2.2. Verifying hazardous substances in construction materials

A basic guide to **Safety Data Sheets** (SDS) and
Environmental Product Declarations (EPD)

Interreg
Baltic Sea Region



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SUSTAINABLE WATERS

NonHazCity 3

Construction
chemicals with
**Safety Data
Sheets (SDS)**

- Legislation requires SDS for **hazardous chemicals or mixtures**
- The relevant mixtures in construction that have SDS: adhesives, sealants, varnishes, paints, solvents, PU foams, wood preservatives, silicones, cement, concrete etc.
- An SDS is not provided for construction materials other than chemicals

Construction
materials with
an
**Environmental
Product
Declaration
(EPD)**

- You can get information about **chemicals in construction materials** from the EPD
- The relevant materials in construction that have SDS: floor coverings, insulation plates, gypsum wallboards, glass wool boards, MDF wall panels, plywood, etc..

SAFETY DATA SHEETS (SDS)

What are Safety Data Sheets (SDS)?

- **Official documents** that provide essential information about a chemical substance or mixture.
- **Required by law** (e.g., EU REACH/CLP) to ensure safe handling, storage, and use of chemicals.
- **Describe hazards**, such as health risks, environmental risks, and physical dangers.
- Provide **chemical composition** information, including hazardous ingredients.
- **Include safety** instructions for workers, installers, and building managers.
- **Help to ensure safer product selection** in construction and material procurement.

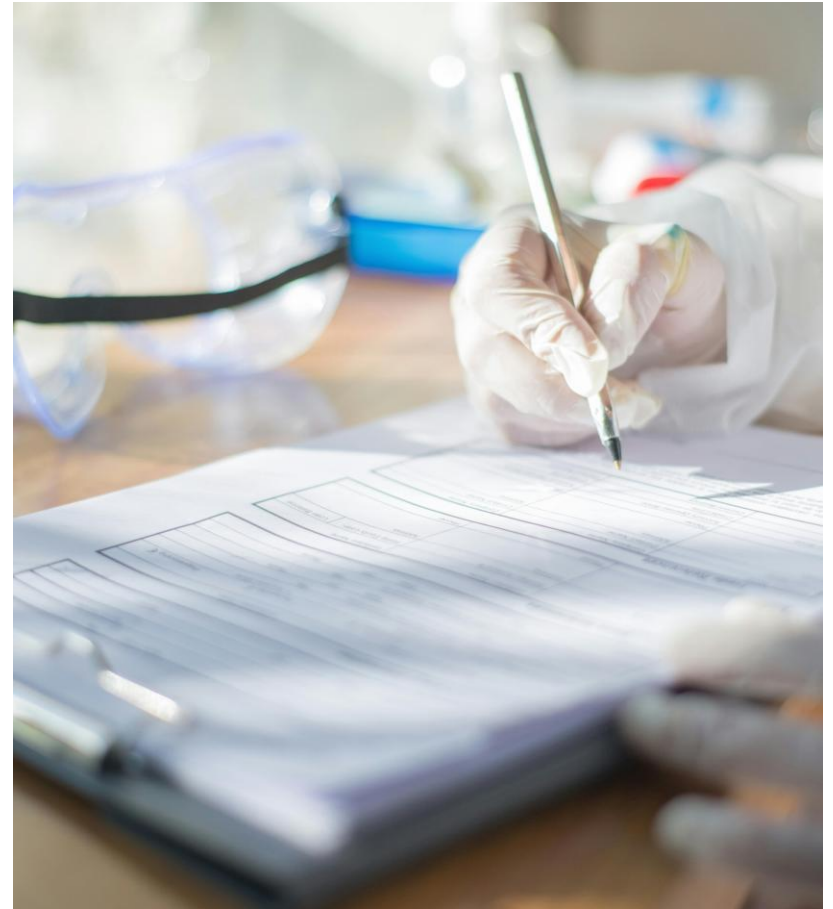


Photo by Kampus Production



What information do SDS contain?

SDS includes 16 sections:

- detailing physical, health, and environmental hazards
- safety precautions for handling, storing, and transporting
- providing guidance for Personal Protective Equipment (PPE)
- first aid and spill clean-up procedures

Most important:

- **Section 2.** Hazard identification
- **Section 3.** Composition/information about ingredients and their classification
- **Section 8.** Exposure controls/personal protection

SAFETY DATA SHEET
Cleanit Date of Issue: *June 2015*

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier:
Product identifier: *Acme Cleaner*
Trade Name: *Acme Cleaner* Synonyms: *Cleanit*

1.2 Relevant identified uses of the substance or mixture and uses advised against: Used as a *cleaner*


1.3 Details of the supplier of the safety data sheet:
Company name: *Acme Cleaning Ltd., 1 Acme Lane, Ind. Estate, Dublin 123*
Telephone number: *01 234 5678*
E-mail of responsible person for SDS: *tom.acme@cleaning.com*

1.4 Emergency telephone number
Emergency telephone number: *01 123 4567 (Poisons Centre number)*

2. Hazards Identification

2.1 Classification of the mixture:
Eye Irritant 2, H319
Skin Irritant 2, H315

2.2 Label elements:

Labelling according to Regulation (EC) No 1272/2008:
Pictogram:  Signal Word: *Warning*
Hazard Statements: *H319 Causes serious eye irritation*
H315 Causes skin irritation
Precautionary Statements: *H315 Causes skin irritation*

Precautionary statements as assigned:
More precautionary statements
More precautionary statements
Precautionary statements

2.3 Other Hazards: *There are no known other hazards.*

3. Composition/Information on Ingredients

Name	EC No.	CAS No.	Content	Classification
ABC	123-456-0	1234-56-7	<1%	Skin Corr. Cat. 1B H314
VVZ	123-789-0	1234-56-0	>99%	Skin Irrit. 2, H315, Eye

8. Exposure Controls/Personal Protection

8.1 Control Parameters
Exposure limit values
OELV 5 mg/m³
OELV 15 min

8.2 Exposure controls
Occupational exposure controls
Respiratory Equipment
CEN standard 123
Hand Protection
Protective gloves should be used if there is a risk of direct contact or splash. Use protective gloves made of Rubber (natural, latex), CEN standard 1234. Breakthrough time of the glove material.
Eye Protection
Wear approved chemical safety goggles CEI standard
Other Protection
Wear appropriate clothing to prevent any possibility of skin contact. Provide eyewash station.
Hygiene Measures
Wash at the end of each work shift and before eating, smoking and using the toilet. Wash promptly if skin becomes wet or contaminated. Promptly remove any clothing that becomes contaminated. When using do not eat, drink or smoke.
Environmental exposure controls
Use closed systems or local exhaust ventilation to maintain exposure within OELVs where necessary.

Section 2: check if it is a hazardous chemical

- Includes hazard classification & communication elements
- Classification lists hazard classes, categories, and hazard statements
- Avoid chemicals classified as **carcinogenic, mutagenic, reprotoxic**, or with severe **acute/organ toxicity**
- Choose safer alternatives with fewer or less severe hazard classifications

Pictograms for Health Hazards:



Acute toxicity
(severe)



Corrosive
(skin corrosion/
burns, eye
damage)



Carcinogenic
Mutagenic
Reprotoxic
Respiratory
Sensitization
Target Organ
Toxicity
Aspiration Toxicity



Irritant
Dermal Sensitizer
Acute toxicity
(harmful)
Narcotic Effects
Respiratory Tract
Irritation

Pictograms warn users about potential chemical hazards

Section 3: check the contents of hazardous substances in the mixture

- **Compliance vs. Safety:**

Legal concentration limits don't always equal "best practice."

- **Minimize Risk:**

Prioritize mixtures with the lowest volume of hazardous chemicals.

- **Smart Selection:**

Actively choose formulas with less hazardous components to improve overall safety profiles.

3. Composition/Information on Ingredients				
Name	EC No.	CAS No.	Content	Classification
ABC	123-456-0	1234-56-7	<1%	Skin Corr. Cat. 1B H314
XYZ	123-789-0	1234-56-0	>99%	Skin irrit. 2 H315, Eye irrit. 2 H319

The explanations of hazard categories, H-phrases can be found in the United Nations Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

<https://unece.org/about-ghs>

Substances to be avoided in construction chemicals (1)

- **Volatile organic compounds (VOCs):** acetone, toluene, benzene, xylene, ethane-1,2-dithiol, n-butyl acetate, etc.
 - used as solvents in paints or varnishes
 - they are substances that evaporate during and after painting
 - inhaling paint or varnish fumes can result in adverse health effects like nausea, fatigue, headaches, skin and eye irritation
- ✓ **Avoid VOCs, choose mixtures with low or no VOC (less than 10 g VOCs per litre)**
- ✓ **Prefer water-based paints**

Formaldehyde is a common VOC. It is often used as such as preserving agent, but may also be split during the use-phase.



Substances to be avoided in construction chemicals (2)

- **Formaldehyde and the formaldehyde-releasing preservatives:** quaternium-15, DMDM hydantoin, imidazolidinyl urea, diazolidinyl urea, polyoxymethylene urea, etc.
 - formaldehyde-releasers are added to prevent microbial growth and extend shelf life; they slowly release formaldehyde
 - formaldehyde is used in pressed-wood products, such as particleboard, plywood, fibreboard; formaldehyde releasers is used in paints, glues, adhesives, certain insulation materials and load-bearing (OSB particle board).
 - formaldehyde is the contact allergen; it causes cancer, irritates the nose, eyes and throat; these irritations can happen even when exposed to low levels of formaldehyde. It makes those exposed prone to allergies.
- ✓ **Avoid formaldehyde or formaldehyde-releasing agents and preservatives**



Substances to be avoided in construction chemicals (3)

- **Isocyanates:** toluene diisocyanate, methylene diphenyl diisocyanate, etc.
 - used in foams, adhesives, sealants, paints, coating products, flooring
 - classified as potential human carcinogens and known to cause cancer, skin irritation; they may cause an allergic skin reaction, may cause allergy or asthma symptoms or breathing difficulties if inhaled, as well as respiratory irritation
 - certain tasks, such as spraying, can produce very high exposure to isocyanates.
- ✓ **Avoid health-harming ingredients that are isocyanates**



ENVIRONMENTAL PRODUCT DECLARATIONS (EPD)

What are Environmental Product Declarations (EPD)?

- **Standardised, third-party-verified documents** describing the environmental impacts of a product.
- **Based on Life Cycle Assessment (LCA)** according to international standards (EN 15804, ISO standard for Type III environmental declarations ISO 14025).
- Provide **transparent, comparable data** on environmental performance.
- Focus on **quantified impacts**, not pass/fail criteria.
- Used widely in construction, procurement, and green building certifications.

Environmental
Product
Declaration



In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:



PPG Tikkurila Panssari Roof

Programme:
Programme operator:
EPD registration number:
Version date:
Validity date:
The International EPD® System, www.epd-international.com
EPD-IES-0028084
2026-01-12
2031-01-12

An EPD may be updated or depublished if conditions change. To find the latest version of the EPD and to confirm its validity, see www.epd-international.com.

EPD of multiple products, based on worst-case results.

EPD of construction products may not be comparable if they do not comply with EN 15804.



KNAUF INSULATION

ENVIRONMENTAL PRODUCT DECLARATION

Knauf Insulation unfaced batts with a density of 13.4kg/m³ and a thermal conductivity of:

- 0.041W/mK at 23°C (AU, JP)
- 0.041W/mK at 20°C (MY & SG)
- 0.039W/mK at 15°C (NZ)



In accordance with:
ISO 14025, ISO 21950, EN 15804+A2:2019/AC:2021

Programme:
Programme operator:
EPD registration number:
Publication date:
Validity date:
The International EPD® System
www.epd-international.com
EPD International AB
EPD-IES-0028776
2026-01-13
2031-01-13

An EPD may be updated or depublished if conditions change. To find the latest version of the EPD and to confirm its validity, see www.epd-international.com.
Knauf Insulation EPDs are EPD of multiple products, based on a representative product.
Please note that any ancillary materials used for the installation of the product are excluded from the LCA calculations.

Build on us.



What information do EPD contain?

- **Life cycle stages** (A1-A3, A4-A5, B1-B7, C1-C4, D) showing the product's full environmental footprint.
- **Key impact categories**, such as:
 - Global warming potential (CO₂ emissions)
 - Resource use (energy, water, raw materials)
 - Waste generation and end-of-life impacts
 - Air, water, and soil emissions.
- **Product composition** and technical specifications.
- **Declared unit**, e.g. "1 m²", "1 kg", or "1 piece" for fair comparison.
- **Verification** and programme operator details for transparency and credibility.



EPDs and chemicals

- EPDs must include a **content declaration** listing the materials and chemical substances contained in the product.
- The declaration must identify, at minimum, any substances on the Candidate List of **Substances of Very High Concern** (SVHC).
- SVHCs must be listed when **their concentration exceeds 0.1%** of the product's weight.

Examples from EPDs:

Dangerous substances from the candidate list of SVHC for Authorisation	EC No.	CAS No.	Weight-% per declared unit
None			

Content Declaration

The product does not contain substances on the "Candidate List of Substances of Very High Concern for Authorisation" in force at the time of the EPD publication under the REACH regulation (if above 0.1% of the mass).



EPD vs SDS – What's the difference?

Safety Data Sheets (SDS)

- Focus on chemical hazards and safe use
- Required by law under REACH/CLP (EU)
- Provide hazard classifications, health/environment risks, and exposure controls
- Include detailed chemical composition, including hazardous substances.
- Guide safe handling, storage, transport, and emergency response
- Serve as a workplace safety and compliance document

Environmental Product Declarations (EPD)

- Focus on environmental impacts across the product life cycle
- Based on Life Cycle Assessment (LCA). Standardised under EN 15804 and ISO 14025
- Provide quantified data (CO₂ emissions, energy use, waste, resource use)
- Show environmental transparency, not chemical safety
- Do not include full hazardous substance declarations



What are Substances of Very High Concern (SVHC)?

- Substances that may have **serious** and often irreversible effects on human health or the environment.
- Identified under the EU REACH Regulation, Article 57, and placed on the SVHC Candidate List for potential authorisation or restriction.
- Proposed when they meet criteria such as:
 - Carcinogenic, mutagenic, or toxic for reproduction (**CMR**)
 - Persistent, bioaccumulative, and toxic (**PBT**)
 - Very persistent and very bioaccumulative (**vPvB**)
 - Or when there is scientific evidence of serious effects giving rise to equivalent concern, such as **endocrine disruption**.

CAS No.	Date of inclusion	Reason for inclusion
84852-53-9	05-Nov-2025	vPvB (Article 57e)
-	25-Jun-2025	Toxic for reproduction (Article 57)
141-62-8	25-Jun-2025	vPvB (Article 57e)
17928-	25-Jun-2025	vPvB (Article 57e)



Thank you!

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