Building Material Human Hazard & Exposure Assessment

Possible 1 point

Intent

To reward project teams for selecting products that are assessed using accepted risk assessment methodologies for installation and use of building products.

Requirements

Use at least 5 different permanently installed products from at least two different manufacturers with validated hazard assessment and exposure assessments for each substance.

Hazard Assessment

The manufacturer has completed a screening level hazard assessment for each substance in the building product present in concentrations greater than 1000 ppm for each endpoint below:

- Carcinogenicity
- Mutagenicity/Genotoxicity
- Reproductive & Developmental Toxicity
- Acute Toxicity
- Eye and Skin Irritation
- Aspiration hazard
- Chronic toxicity Skin & Respiratory Sensitization
- Specific Target Organ Toxicity (Single Exposure)
- Specific Target Organ Toxicity (Repeated Exposure)

If any of the ingredients are flagged according to Table 1, the product will proceed to the exposure assessment described below. If no ingredients are flagged in the hazard assessment, no exposure assessment is required to be documented. Building product manufacturers may proceed directly to an integrated hazard and exposure (risk) assessment, looking at the endpoints specified above for the building product, if they so choose.

Table 1.

Endpoint	GHS Hazard Criteria If a substance falls into any category listed, it is triggered for exposure assessment.
Carcinogenicity (C)	Category 1, 2
Mutagenicity & Genotoxicity (M)	Category 1, 2
Reproductive Toxicity (R)	Category 1, 2
Acute Mammalian Toxicity (AT) (oral, dermal, and inhalation routes)	Category 1,2,3
Specific Target Organ Toxicity (Single Exposure)	Category 1
Skin Irritation (IrS)	Category 1, 2
Eye Irritation (IrE)	Category 1 or 2A
Aspiration Hazard	Category 1

Specific Target Organ Toxicity (Repeated Exposure)	Category 1, 2
Skin Sensitization (SnS)	Category 1A (or 1 if not sub-categorized)
Respiratory Sensitization (SnR)	Category 1A (or 1 if not sub-categorized)

Exposure Assessment

Perform an exposure assessment for the flagged substance(s) using authoritative approaches consistent with ECETOC TRA, or equivalent or higher tier exposure tool, assessing exposures during product installation and product use. Document assumptions about when and how exposure occurs.

Employ authoritative appoaches for the result calculation, such as a risk characterization ratio (RCR), consistent with methods used by US EPA, European Chemicals Agency, or Environment Canada/Health Canada. Use data from the following sources to estimate exposure using the scenarios above for construction workers, installers and building occupants.

Chemical reference values must be sourced from peer-reviewed data, preferably recognized authoritative agencies, publications, and databases such as:

International Toxicity Estimates for Risk (ITER)

National Library of Medicine ToxNET meta-database for toxicology information

GESTIS DNEL database

Alternatively, reference values can be derived from points of departure from rigorous toxicological studies provided assessors disclose the point of departure value and any mathematical extrapolations to a lower exposure limit.

In the absence of empirically derived data, computer modeling or read across values can be used to fill data gaps but data sources and assumptions must be disclosed.

Report risks from each exposure pathway (e.g. inhalation, dermal, oral)

Combine risks from each exposure pathway in a screening level assessment for a total safety result, which must produce a Risk Characterization Ratio less than or equal to one.

For higher tier assessment techniques, risks will be added only when exposure pathways produce effects using the same mode of action.

Disclose assumptions and calculations to GBCI. Products where hazard and exposure assessment results are disclosed to GBCI or GBCI-authorized third-parties are valued as one product.

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