

SPECIAL CONDITION: Geological Material

Version: SCGeoMats/2023-07-20

BACKGROUND

Definitions

The following definitions help define the scope of this Special Condition:

Geological material: A material extracted as-is from the earth in rock or sediment form, including rock, gravel, quarried stone, clay, sand, and other industrial minerals. For this Special Condition, the defining characteristic of a geological material is the form in which it is extracted from the earth for a specific function, e.g., gravel as aggregate in concrete.

Mineral: Any of a class of substances occurring in nature, usually comprising inorganic substances, as quartz or feldspar, of definite chemical composition and usually of definite crystal structure. For this Special Condition, consistent chemical composition is the defining characteristic.

Note: In broader usage, the term “Industrial mineral” may cover both geological materials and minerals as defined here. This policy therefore does not use this term.

Why is this a Special Condition

A content inventory cannot be created with methods outlined in the current version of the HPD Open Standard due to variable or unknown composition and lack of CAS RNs for geological materials.

Geological materials are typically of variable/unknown composition depending on their extraction location, and in some cases, the potential for impurities is related to specific sources or regions. Until specific conditions are better understood, it will be difficult to monitor variability and predict the presence of impurities.

Scope

The following notes clarify the scope of this Special Condition:

Geological Materials vs. Minerals

Many minerals that are common ingredients in building products have CAS Registry Numbers, such as:

- Gypsum
- Limestone
- Quartz
- Talc
- Kaolin Clay
- Vermiculite
- Perlite
- Feldspar

Manufacturers are encouraged to use standard HPD reporting processes for these ingredients and not reference this Special Condition except in a case where this Special Condition guidance is appropriate due to variable or unknown composition, as in a particularly unrefined supply of the mineral.

Geological materials that do not have a CAS RN include the following:

- Gravel
- Sand

- Quarried stone, e.g., granite, slate, marble
- Shale

These and other geological materials that do not have a CAS RN are required to use this Special Condition guidance.

Additives

This Special Condition covers only the raw geological material itself. Any binders, coatings, and finishes, along with additives or other identifiable substances added to the material, must use the typical HPD content inventory and hazard screening process.

Required Data Reporting

The following are the data reporting requirements to be used under this Special Condition. All data reporting is optional, but lack of specific data points, as noted here, affects compliance with key indicators for the HPD [see 2.1.2.3 Characterized, Screened, Identified in the HPD Open Standard]:

- The following data is required to be provided for the content to be indicated as “Yes” for “Characterized” on the HPD report:
 - *Percentage weight and role.* Provide for each Geological Material. The HPD cannot be published without these fields being completed according to the HPD Open Standard.

For all contents above the threshold, the manufacturer has:

Characterized Yes No
Provided weight and role

Screened Yes No
Provided screening results using HPDC-approved methods

Identified Yes No
Provided name and CAS RN or other identifier

- The following data is required to be provided for the content to be considered “Identified” on the HPD report:
 - *Material name.* Enter a specific name for the material.
 - *Identifier.* Enter “Geological Material” when using this guidance.
 - *Ingredient Description and Composition.* Provide a specific description of the geological material and composition.
- The following data is required to be provided for the content to be considered “Screened” on the HPD report:
 - *Country of Origin.* Provide country of the extraction location.
 - *Radioactive Content.* Note known or likely presence, or known absence, of radioactive elements, including radium, thorium, and potassium 40 (K40). This information can be found via supplier certification of analysis or specification sheets. It may also be available through material specific databases such as “The Quartz Common Products Database.” If the supplier or a reliable database cannot provide this information, and analytical testing is unfeasible, “Unknown” must be selected for this section. The product will still be considered “Screened.”



- *Potential Presence of Toxic Metals.* Note known or likely presence, or known absence, of toxic metals, whether from natural or manmade sources. Toxic metals are defined for this purpose as antimony, arsenic, cadmium, chromium VI, cobalt, lead, mercury, nickel, thallium, tin, uranium, and vanadium. This information can be found via supplier certification of analysis or specification sheets. It may also be available through material specific databases such as “The Quartz Common Products Database.” If the supplier or a reliable database cannot provide this information, and analytical testing is unfeasible, “Unknown” must be selected for this section. The product will still be considered “Screened.”

Harmonization

This Special Condition has been harmonized with the following:

- Cradle to Cradle Certified™, *Geological Materials Assessment Methodology*, June 2017; <http://www.c2ccertified.org/resources/detail/geological-materials-assessment-methodology>
- International Living Future Institute, *Declare Manufacturer's Guide*, October 2018; ("Geological materials such as natural granite do not require disclosure of a CASRN; manufactured stone products require the disclosure with a CASRN of all resins/binders/sealers, but geological components do not require a CASRN", Page 6)
- BIFMA e3 2019 <https://www.bifma.org/page/e3standard> (no specific requirements)
- GHS (no specific reporting requirements)

GUIDANCE/ INSTRUCTIONS:

Special Conditions instructions for specific data fields follow; ***if there are no specific instructions listed for a data field, the typical requirements of the HPD Open Standard should be followed.*** If the HPD Open Standard and Special Conditions instructions are followed, the HPD will not be barred from qualifying for the LEED v4 Material Disclosure and Optimization, Material Ingredients credit, Option 1.

*Data field auto-fills if using HPD Builder

HPD Data Field	Special Condition Requirements
SECTION 1: SUMMARY	
Content in Descending Order of Quantity*	● Materials and Substances must be listed by the Material Name if applicable (GeologicalMaterial) as instructed in Section 2.
Characterized Screened Identified*	“Yes” should be checked if all Standard requirements are met, and all reporting requirements are met below. See notes below where “No” should be marked for one or more indicator.
Inventory and Screening Notes*	● Include the following notes: <ul style="list-style-type: none"> ○ “Special Conditions applied: [GeologicalMaterial].”
SECTION 2: CONTENT IN DESCENDING ORDER OF QUANTITY	



Materials – instructions apply to both Nested Materials and Basic Inventory formats. These fields are customized to this Special Condition guidance. Fields unique to this Special Condition are marked below with a double asterisk**. This mockup shows a typical result of the following instructions:

GRANITE		ID: Geological Material	
HAZARD DATA SOURCE: HPDC Special Conditions Policy			
%: 90.0000 - 95.0000	GreenScreen: Not Required	RC: None	NANO: No MATERIAL ROLE: Structure component
HAZARD TYPE	AGENCY AND LIST TITLES	WARNINGS	
Hazard Screening is not applicable to this Special Condition			
INGREDIENT DESCRIPTION AND COMPOSITION: Granite countertop that can contain aluminum oxide, calcium oxide, magnesium oxide, and iron oxide elements.			
COUNTRY OF ORIGIN: United States			
RADIOACTIVE ELEMENTS: According to supplier specification sheet, granite has the potential of radon exhalation.			
POTENTIAL PRESENCE OF TOXIC METALS: According to supplier provided information and/or internal testing, it is determined that no toxic metals are found in this material.			
MATERIAL CONTENT NOTES:			

Material Name	Enter most descriptive name available (e.g., “Basalt” or “Slate,” not “Rock”)
ID (Identifier):	Enter “Geological Materials”
Hazard Data Source*	Enter “HPDC Special Conditions Policy.”
GreenScreen*	Enter “Not Required.”
Ingredient Description and Composition**	<p>Enter ingredients and typical composition of geological material.</p> <p>Examples of a complete entry for this field:</p> <ul style="list-style-type: none"> -Quartz and potassium are commonly found in Gypsum so a manufacturer could enter information such as <i>“Per Quartz database, common impurities of gypsum are Quartz at 0.98% and potassium at 0.03%”</i> -Depending on the product use there may be additional information that can be added in this section such as <i>“Only a few elements can replace silicon in the quartz lattice (substitutional positions) or are small enough to occupy free spaces in the lattice (interstitial positions). In natural quartz crystals, the most common ones to replace Si are Al, Fe, Ge, and Ti, whereas Li, Na, Ca, Mg and Fe often occupy interstitial positions in the “c-channels”</i> <p>Note: A complete entry in this field is required to proceed with publishing the HPD.</p>



<p>Radioactive Elements**</p>	<p>Enter radioactive elements found in geological material (if any).</p> <p>Examples of a complete entry for this field:</p> <ul style="list-style-type: none">• <i>“Slate stone with potential for radon exhalation according to supplier specification sheet”</i>• <i>“According to the supplier there is potential for small amounts uranium, which decays into radon, to be present in the granite stone due to the location of the extraction area”</i> <p>If no radioactive elements are found, then please enter:</p> <p><i>“According to supplier provided information and/or internal testing, it is determined that no radioactive elements are found in this material.”</i></p> <p>If information is unknown, enter the following in this section:</p> <p><i>“This disclosure does not provide potential presence of radioactive elements which may be found in certain geological materials.”</i></p> <p>Note: One of the statements above is required to publish the HPD.</p>
<p>Country of Origin**</p>	<p>Enter country where extraction took place.</p> <p>If there are multiple suppliers for the geological material, then:</p> <ul style="list-style-type: none">• Pick from the predefined list each country the materials come from
<p>Potential Presence of Toxic Metals**</p>	<p>Enter applicable toxic metals found in geological material (if any)</p> <p>Examples of a complete entry for this field:</p> <ul style="list-style-type: none">• <i>“According to the Quartz database of common building materials, chromium compounds at 0.01% is an impurity in clinker (limestone).”</i>• <i>“According to the supplier certification of analysis trace amounts of arsenic may be found in the sandstone due to the extraction location.”</i> <p>If no toxic metals are found, then please enter:</p> <p><i>“According to supplier provided information and/or internal testing, it is determined that no toxic metals are found in this material.”</i></p>



	<p>If information is unknown, enter the following in this section:</p> <p>“This disclosure does not provide potential presence of toxic metals which may be found in certain geological materials.”</p> <p>Note: One of the statements above is required to publish the HPD.</p>
Material Content Notes*	Enter any notes here according to typical HPD reporting requirements.
Hazards and Agency(ies) with Warnings*	Enter “Hazard Screening not applicable to this Special Condition”
SECTION 3: CERTIFICATIONS AND COMPLIANCE	
No changes to requirements for Special Conditions	
SECTION 4: ACCESSORIES	
No changes to requirements for Special Conditions	
SECTION 5: GENERAL NOTES	
No changes to requirements for Special Conditions	
SECTION 6: REFERENCES	
No changes to requirements for Special Conditions	

VERSION CONTROL

This document replaces SCGeoMats/2022-07-11. It includes the following updates:

- Updated revision for v2.3 update. No changes to content.