

Best Practices for Considering Residuals and Impurities in HPD Open Standard 2.1

The following Best Practices should be followed for considering and reporting Residuals and Impurities (R/I) in the HPD Open Standard version 2.1.

GENERAL RULES

- The threshold applied to Residuals and Impurities (R/I) should be the same as the threshold applied to intentionally added substances, in terms of level (i.e., 100 ppm, 1000 ppm, per SDS, etc.) and whether applied to each homogenous Material or to the Product as a whole. In this document, this is referred to as the “declared Inventory Threshold” (* See **ADDITIONAL NOTES** at end of document for further explanation and examples). Residuals and impurities present below the declared Inventory Threshold do not need to be reported on the HPD.
- Only R/I that return a GreenScreen® score of BM-1, LT-1, LT-P1 or NoGS (previously “UNK”) must be reported.
- Always use best available data; e.g. do not use common product or generic data if better product or substance-specific data are available from SDS or other source.

PROCEDURE: Answer the following questions in order to appropriately consider and report R/I for your HPD:

QUESTION 1: Do you have evidence for the **PRESENCE** of R/I for your Product/Material based on direct testing, supplier SDS, or other supplier documentation?

YES: Consider and Report R/I as follows:

- 1) Note any R/I known to be present in the Product/Material at or above the declared Inventory Threshold* for your HPD
- 2) Determine the GreenScreen® score for each of the R/I noted in (1) above (via, e.g. Pharos CML, HPD Builder, GreenScreen® Store, etc.)
- 3) All R/I noted above that return a GS score of BM-1, LT-1, LT-P1 or NoGS (previously “UNK”) must be reported in the Content Inventory of the associated Material or Product (Section 2 of the HPD)
- 4) Proceed to **QUESTION 2** below

NO: Proceed to **QUESTION 2** below

QUESTION 2: Could your product be considered a “Common Product”, as listed in Quartz Project Database (www.QuartzProject.org) or Pharos Chemical and Material Library (CML) (www.PharosProject.net)?

YES: Proceed to **Path A** on next page

NO: Proceed to **Path B** on next page

PATH A Consider and Report R/I as follows:

- 1) Review your product type for R/I via:
 - a) “Impurities” section of Quartz Project Database ; and/or
 - b) “Process Chemistry - Known or Potential Residuals” section of Pharos CML
- 2) Note any R/I with “% Wt. Whole” listed at or above the declared Inventory Threshold* **OR** listed as “Unknown”
- 3) Determine the GreenScreen® score for each of the R/I noted in (2) above (via, e.g. Pharos CML, HPD Builder, GreenScreen® Store, etc.)
- 4) All potential R/I noted above that return a GS score of BM-1, LT-1, LT-P1 or NoGS (previously “UNK”) must be reported in the Content Inventory of the associated Product/Material (Section 2 of the HPD); **unless**:
 - a) The substance with which that R/I is associated is not used in your Product/Material; **and/or**
 - b) The amount of substance with which that R/I is associated is used at a level below the declared Inventory Threshold*; **and/or**
 - c) There is documentation (e.g. SDS, supplier disclosure letter) to confirm that this particular R/I falls below the declared Inventory Threshold*
- 5) **Proceed to QUESTION 3** below

QUESTION 3: Are there any additional/alternate substances used in your Product/Material at or above the declared Inventory Threshold* that are not included in the “General Composition” (Quartz Project) or “Common Contents” (Pharos CML) sections for your Product type?

YES: Proceed to **Path B**

NO: Consideration of R/I can be considered complete. See R/I NOTES below for additional information on reporting R/I.

PATH B Consider and Report R/I as follows:

- 1) Review “Process Chemistry - Known or Potential Residuals” section of Pharos CML² for each intentionally added substance present in your Product/Material at or above the declared Inventory Threshold* (Pharos CML→Chemicals and Materials→Search Chemicals and Materials→Process Chemistry Research)
 - a) Currently considering adding exception for substances on specific “safer chemicals” lists, to be identified
- 2) Note R/I with “Percentage” listed at or above the disclosed Inventory Threshold* (calculated based on amount of substance used in formulation) **OR** listed as “Unknown”
- 3) Determine GreenScreen® score for each R/I noted above (via, e.g. Pharos CML, HPD Builder, GreenScreen® Store, etc.)
- 4) All potential R/I noted above that return a GS score of BM-1, LT-1, LT-P1 or NoGS (previously “UNK”) must be reported in the Content Inventory of the associated Product/Material (Section 2 of the HPD); **unless** there is documentation (e.g. SDS or other supplier documentation) confirming that this particular R/I falls below the declared Inventory Threshold*

5) Consideration of R/I can be considered complete. See R/I NOTES below for additional information on reporting R/I.

R/I NOTES

Residual and Impurities Notes for Product/Material should include the following statement/s (as applicable):

“Residuals and Impurities were considered based on [select any/all of the following that apply]”

- direct testing via (state methodology used)
- supplier SDS (must also include the following notification: “SDS may not identify all Residuals or Impurities present in this [Product/Material] that would require reporting on the HPD”)
- supplier disclosure letter (include disclosure threshold provided – e.g. 1000 ppm for Product/Material)
- other type of documentation; please specify
- process chemistry via [Quartz Project Database and/or Pharos CML]

And: If R/I were investigated, but no R/I required to be reported were identified

- Include the following statement: “No Residuals or Impurities are expected to be present at or above Content Inventory Threshold that return a GreenScreen score of BM-1, LT-1, LT-P1 or NoGS.”
- Include any additional information on R/I, as available; e.g. source of R/I, substance with which R/I associated, etc.

And: If an R/I is expected to be present in a considered substance (e.g. based on process chemistry via Quartz/Pharos CML) but has been excluded from reporting, provide an explanation for this discrepancy (See [Path A](#), 4 a-c above).

REFERENCES

*** Declared Inventory Threshold**

The Inventory Threshold for R/I reporting is based on the Inventory Threshold indicated and reporting method used for the HPD. Examples:

1. Manufacturer has chosen to use the “Nested Material Method” with a reporting threshold of 1000 parts per million (ppm) for each *Material*; then R/I should be considered to at least 1000 ppm for each *Material*
2. Manufacturer has chosen to use the “Nested Material Method” with a reporting threshold of 1000 ppm for the *Product*; then R/I should be considered to at least 1000 ppm for the whole *Product*
3. Manufacturer has chosen to use the “Basic Inventory” with a reporting threshold of 1000 ppm for the *Product*; then R/I should be considered to at least 1000 ppm for the whole *Product*