



January 27, 2022

Hazardous Waste & Toxics Reduction Program
Washington Department of Ecology
P.O. Box 47600
Olympia, WA 98504
Attention: Lauren Tamboer: lauren.tamboer@ecy.wa.gov

RE: RFCI Member Survey on Recycled Content

Dear Lauren,

I hope this finds you doing well. As we have discussed with you and your colleagues within the Washington Department of Ecology (“Ecology”), RFCI shares Ecology’s goal of promoting sustainable and environmentally responsible recycling. In the context of resilient flooring, this means promoting the inclusion of recycled content in resilient flooring products where appropriate to reduce landfill disposal volumes and potential environmental impacts, while minimizing the amount of any chemicals of concern (including orthophthalates) present in the recycled content.

As the department moves forward with implementation of the Safer Products for Washington Program and in support of furthering Ecology’s understanding of RFCI members’ recycling efforts, RFCI surveyed their members about their respective recycling practices. The survey was completed during the fourth quarter of 2021. Please find attached a copy of the survey results, which we hope will provide some insight into the inclusion and type of recycled content typically used in resilient flooring products.

Not surprising, particularly given the limitations of the informal survey tool, the survey results include some apparent inconsistencies, that I wanted to bring to your direct attention, specifically:

- Question #3 identifies only one manufacturer using post-consumer content; however, Question #6 identifies three manufacturers using post-consumer content when broken down by vinyl flooring types. This may have occurred due to survey takers reading the question as “recycled content” versus specifically “post-consumer recycled content.”
- Question #8 appears to corroborate the response to Question #3, as there is only one response for one product type that includes post-consumer recycled content. That product type is vinyl composition tile (VCT), which is predominantly made of filler (limestone/calcium carbonate) and a lesser amount of vinyl resin and subsequent plasticizer, versus other resilient flooring product types (e.g., LVT, sheet, etc.). In speaking to members post-survey, it is anticipated that the recycled content is not the vinyl containing plasticizer, but the filler, as gypsum board can be recycled and used as a filler to manufacturer VCT.

Because this was an anonymous survey, we are not in a position to verify responses from individual survey takers in order to resolve the apparent inconsistencies; however, we will continue to follow up

on an individual member basis with some on-going discussion to better understand and clarify the results, continuing to share any helpful or clarifying information that we are able to obtain.

Overall summary of information gleaned from the survey as interpreted by our review includes:

- Out of 15 RFCI member respondents, 14 produce vinyl flooring.
- Out of 12 respondents, 8 include recycled content in their products and 4 do not.
- Out of 8 respondents, 7 include pre-consumer content and 1 includes post-consumer content (see inconsistencies listed above).
- Out of 7 respondents, 3 do not include screening of recycled content, 3 include XRF or laboratory testing of recycled content, and 1 screen out older flooring with chemicals of concern for use of recycled content.
- All 7 respondents use mechanical means for recycling.
- VCT includes pre-consumer and post-consumer content, while other product types (LVT, Heterogeneous and Homogeneous Vinyl Sheet, Rigid Core, and Solid Vinyl Tile) contain only pre-consumer content based on the responses.

We continued to evaluate the following items based upon the initial survey responses:

1. Sources of pre-consumer content:
 - a. Typically, regrind used from the same production line for the same product is not considered pre-consumer. Regrind coming from another production line/plant location and used in another product made by the same manufacturer is considered pre-consumer content. Therefore, the manufacturer would have direct control over this pre-consumer content and the formulation, including using terephthalates or other bio-based plasticizers versus orthophthalates.
 - b. If existing older resilient flooring product is used as pre-consumer content from the same or competing manufacturer, the manufacturer would want to verify that the recycled content has been made with terephthalates or other bio-based types of plasticizers versus orthophthalates. In speaking to members post-survey, recycled content that contains orthophthalates would not typically be used in new resilient flooring product formulations.
2. Verification that, if XRF or laboratory testing is being used and chemicals of concern are found, the recycled content is not used. This is assumed from the survey results, but not specifically asked in the survey.
3. It was anticipated that there would be a more direct correlation from the survey responses that could assist in establishing a percentage of plasticizer for products using recycled content. However, based upon the results, it is shown that the predominant type of recycled content is pre-consumer versus post-consumer, post-consumer recycled content is likely filler versus vinyl resin and plasticizer, and at this time, it would be difficult to make a direct correlation between the possible utilization/presence and amount of orthophthalates based upon the amount of recycled content being used.

RFCI looks forward to continuing to work with our members and the Department of Ecology to better understand the sources of pre-consumer recycled content. Given the limited amount of post-consumer recycled content currently being used and the recycled content most likely being filler (e.g., VCT), at this point in time, post-consumer recycled content with orthophthalates is not typically used in resilient flooring products. Based on information available to date on the use of post-consumer recycled content, it appears that there would be little potential presence of orthophthalates in new resilient flooring products.

As various recycling means and methods of post-consumer content are continuing to be developed, including the removal of chemicals of concern based upon performance standard requirements (as outlined below), the uptake and use of post-consumer content will have the opportunity to increase. Further, new technological developments have the potential to provide a means for tracking new installed resilient flooring products. When those resilient flooring products are removed, the product information, including the type of plasticizer, will be known. This will in turn support widening the opportunities for post-consumer recycling of resilient flooring product, meeting the goals of Ecology as well as the industry.

As will be addressed in RFCI's comments on Ecology's Draft Regulatory Determinations, for testing of resilient flooring products, RFCI recommends that Ecology utilize the following performance-based standards:

1. ASTM F3414 Test Standard Test Method for Determining Ortho-Phthalate Concentration in Flooring Containing Polyvinyl Chloride (as included in the AFFIRM™ Certification based on the proposed revisions to the NSF/ANSI 332 standard for Sustainable Assessment of Resilient Flooring).
2. CPSC-CH-C1001-09.4 or GB/T 22048-2015 (as included within the ASSURE Certification™ Standard and in the AFFIRM™ Certification based on the proposed revisions to the NSF/ANSI 332 standard for Sustainable Assessment of Resilient Flooring).
3. It is noted in the test methods and related standards that resilient flooring products cannot exceed 1,000 PPM for individual or total orthophthalates.

Please let me know if you have any questions and, in the meantime, RFCI will continue to pursue additional information as discussed above. Thank you for your consideration of this feedback and for the continued dialogue as Ecology implements the Safer Products for Washington Program.

Very truly yours,



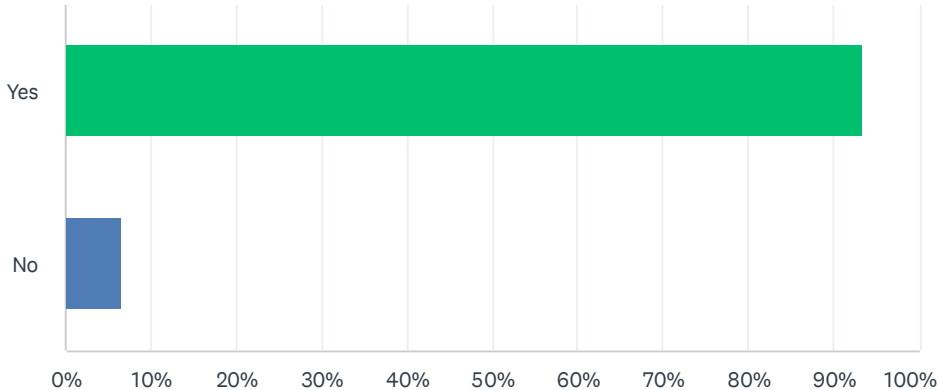
Jane Rohde, AIA, FIIDA, ACHA, CHID
JSR Associates, Inc.
RFCI Technical Consultant

Enclosure.

cc: Marissa Smith: Washington Department of Ecology: masm461@ecy.wa.gov
Dean Thompson: RFCI
Bill Blackstock: RFCI
Allison Foley: Venable, LLC
File

Q1 Do you make vinyl resilient flooring

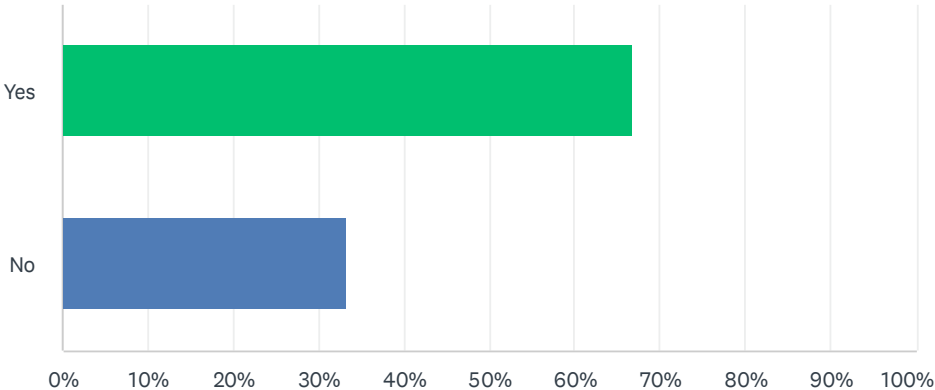
Answered: 15 Skipped: 0



| ANSWER CHOICES | RESPONSES | |
|----------------|-----------|----|
| Yes | 93.33% | 14 |
| No | 6.67% | 1 |
| TOTAL | | 15 |

Q2 Are you using vinyl recycled content in any of your flooring products?

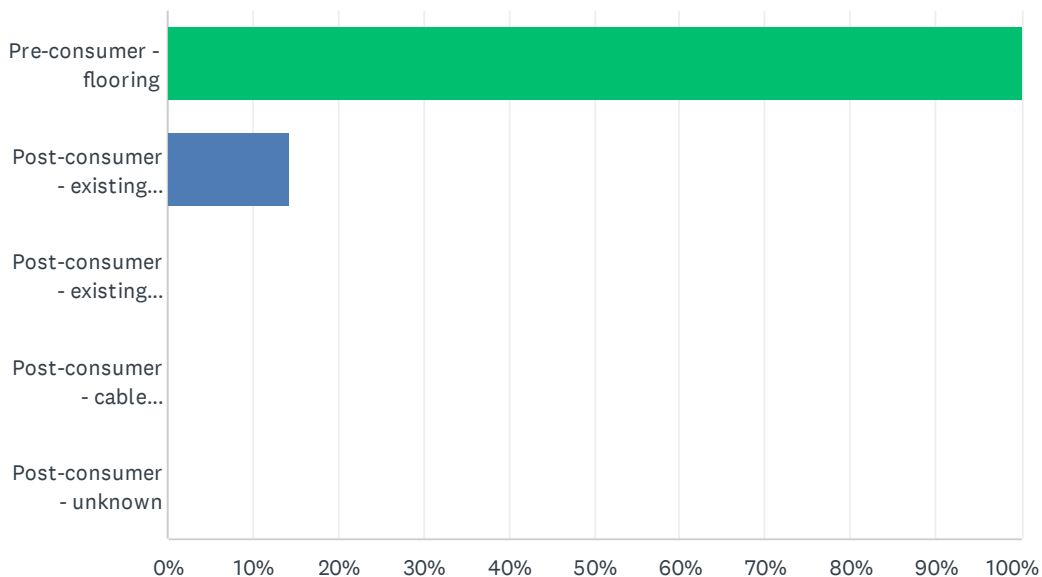
Answered: 12 Skipped: 3



| ANSWER CHOICES | RESPONSES | |
|----------------|-----------|----|
| Yes | 66.67% | 8 |
| No | 33.33% | 4 |
| TOTAL | | 12 |

Q3 If so, what is the source of the vinyl recycled content? (Check all that apply).

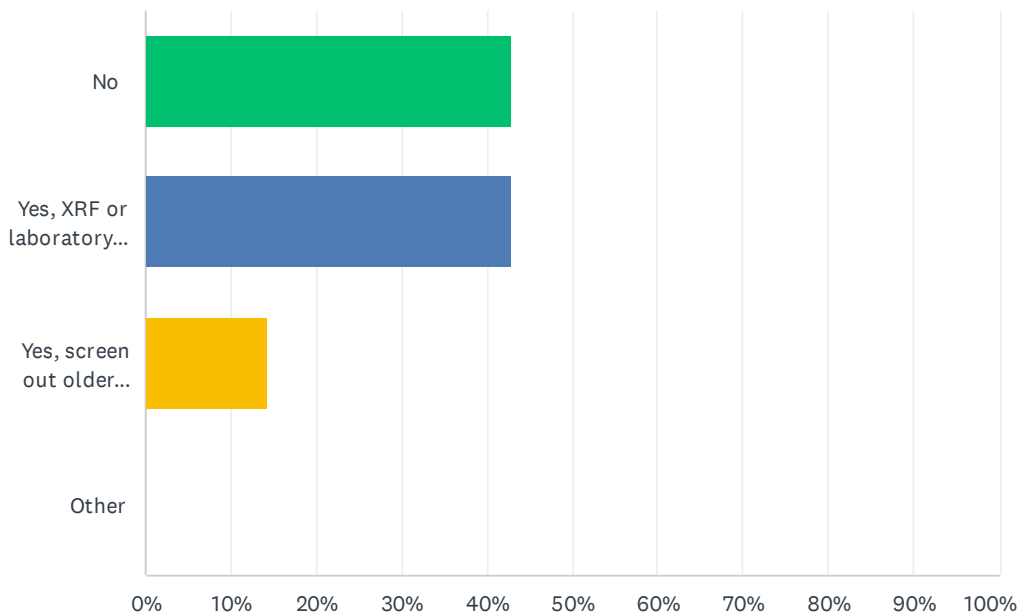
Answered: 7 Skipped: 8



| ANSWER CHOICES | RESPONSES | |
|---|-----------|---|
| Pre-consumer - flooring | 100.00% | 7 |
| Post-consumer - existing flooring installations - unknown dates | 14.29% | 1 |
| Post-consumer - existing flooring installations - known dates | 0.00% | 0 |
| Post-consumer - cable insulation | 0.00% | 0 |
| Post-consumer - unknown | 0.00% | 0 |
| Total Respondents: 7 | | |

Q4 Are there methodologies used to screen the quality of the recycled content?

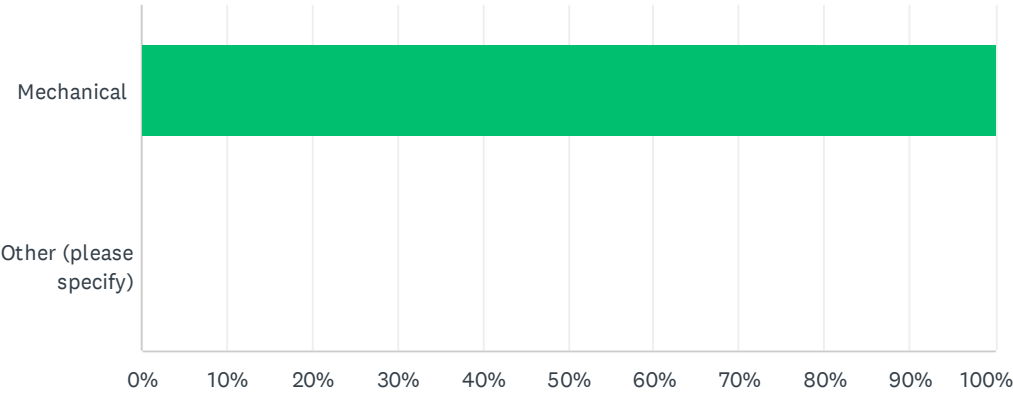
Answered: 7 Skipped: 8



| ANSWER CHOICES | RESPONSES | |
|--|-----------|----------|
| No | 42.86% | 3 |
| Yes, XRF or laboratory testing | 42.86% | 3 |
| Yes, screen out older flooring with chemicals of concern | 14.29% | 1 |
| Other | 0.00% | 0 |
| TOTAL | | 7 |

Q5 How is the PVC recycled?

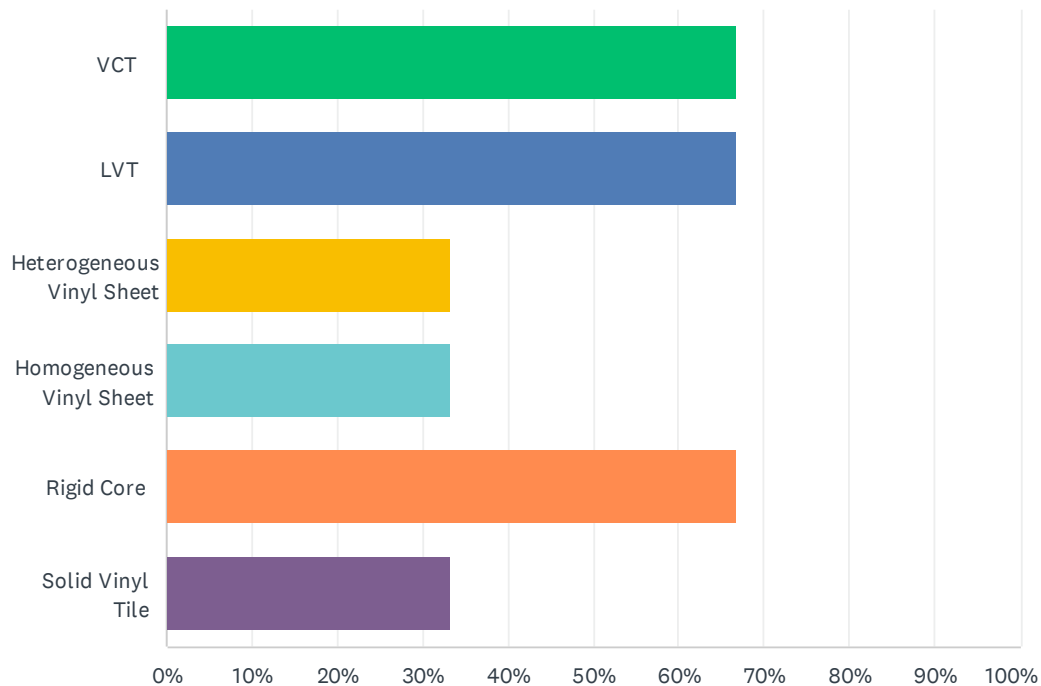
Answered: 7 Skipped: 8



| ANSWER CHOICES | RESPONSES | |
|------------------------|-----------|---|
| Mechanical | 100.00% | 7 |
| Other (please specify) | 0.00% | 0 |
| TOTAL | | 7 |

Q6 If applicable, what vinyl resilient flooring products contain vinyl post-consumer recycled content? (Check all that apply. If none apply, proceed to next question).

Answered: 3 Skipped: 12



| ANSWER CHOICES | RESPONSES |
|---------------------------|-----------|
| VCT | 66.67% 2 |
| LVT | 66.67% 2 |
| Heterogeneous Vinyl Sheet | 33.33% 1 |
| Homogeneous Vinyl Sheet | 33.33% 1 |
| Rigid Core | 66.67% 2 |
| Solid Vinyl Tile | 33.33% 1 |
| Total Respondents: 3 | |

Q7 If applicable, what is the approximate percentage of vinyl recycled content for each applicable product? (Fill-in all that apply).

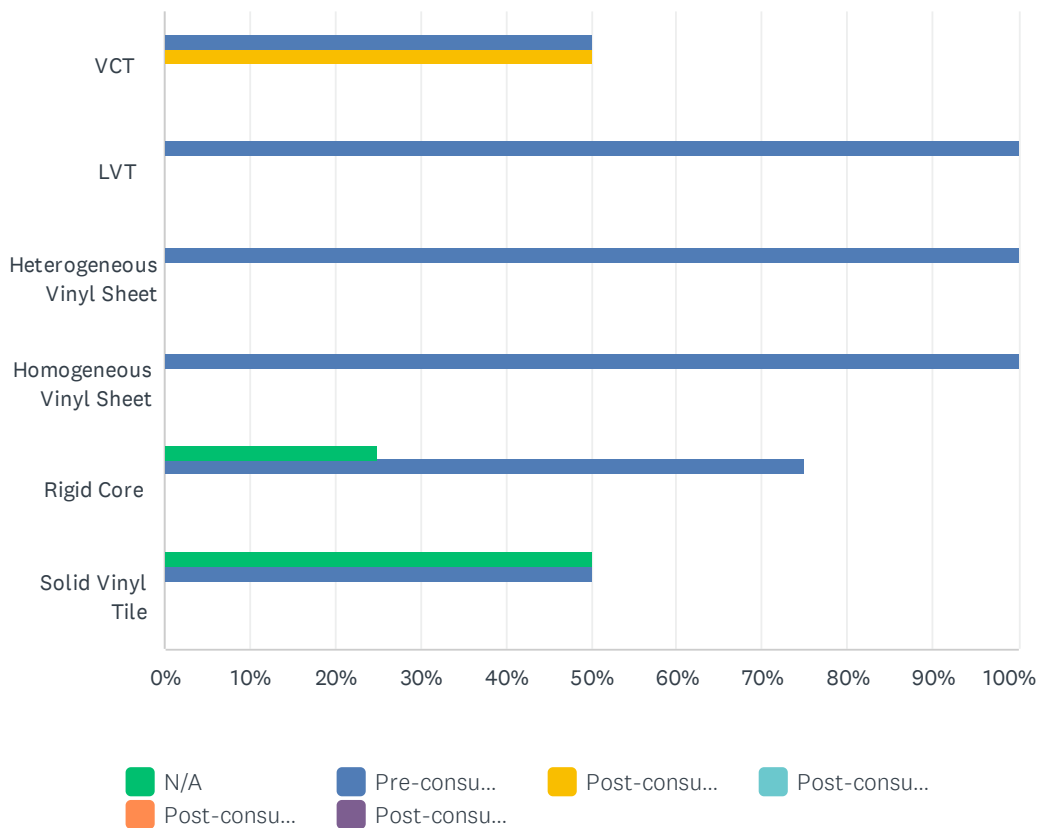
Answered: 7 Skipped: 8

| ANSWER CHOICES | RESPONSES | |
|-----------------------------|-----------|---|
| VCT % | 28.57% | 2 |
| LVT % | 71.43% | 5 |
| Heterogeneous Vinyl Sheet % | 28.57% | 2 |
| Homogeneous Vinyl Sheet % | 14.29% | 1 |
| Rigid Core % | 42.86% | 3 |
| Solid Vinyl Tile % | 14.29% | 1 |

Q8 What is the source of the recycled content for each vinyl resilient flooring product that includes recycled content?

Answered: 7 Skipped: 8

Choose one of the following for each product types (use N/A if necessary)



| Choose one of the following for each product types (use N/A if necessary) | | | | | | | |
|---|-------------|-------------------------|---|---|------------------------------------|-------------------------|-------|
| | N/A | PRE-CONSUMER - FLOORING | POST-CONSUMER - EXISTING FLOORING INSTALLATIONS - UNKNOWN DATES | POST-CONSUMER - EXISTING FLOORING INSTALLATIONS - KNOWN DATES | POST-CONSUMER - CABLE INSTALLATION | POST-CONSUMER - UNKNOWN | TOTAL |
| VCT | 0.00% 0 | 50.00% 1 | 50.00% 1 | 0.00% 0 | 0.00% 0 | 0.00% 0 | 2 |
| LVT | 0.00% 0 | 100.00% 6 | 0.00% 0 | 0.00% 0 | 0.00% 0 | 0.00% 0 | 6 |
| Heterogeneous Vinyl Sheet | 0.00% 0 | 100.00% 3 | 0.00% 0 | 0.00% 0 | 0.00% 0 | 0.00% 0 | 3 |
| Homogeneous Vinyl Sheet | 0.00% 0 | 100.00% 2 | 0.00% 0 | 0.00% 0 | 0.00% 0 | 0.00% 0 | 2 |
| Rigid Core | 25.00% 1 | 75.00% 3 | 0.00% 0 | 0.00% 0 | 0.00% 0 | 0.00% 0 | 4 |
| Solid Vinyl Tile | 50.00% 1 | 50.00% 1 | 0.00% 0 | 0.00% 0 | 0.00% 0 | 0.00% 0 | 2 |