DEPARTMENT OF TRANSPORTATION

Pipeline and Hazardous Materials Safety Administration

[Docket No. PHMSA-2022-0111 (Notice No. 2022-14)]

Hazardous Materials: Request for Feedback on Recycled Plastics Policy

AGENCY: Pipeline and Hazardous Materials Safety Administration (PHMSA), Department of Transportation (DOT).

ACTION: Notice; request for information.

SUMMARY: PHMSA is publishing this notice to: (1) solicit information pertaining to how the potential use of recycled plastic resins in the manufacturing of specification packagings may affect hazardous materials transportation safety; (2) ensure transparency of its current policy pertaining to the use of recycled plastics in the manufacturing of specification packagings; (3) seek input on this policy to better inform potential regulatory changes; and (4) gather information for the evaluation of future approval requests and to better inform decisions pertaining to potential regulatory revisions and other related work.

DATES: Interested parties are invited to submit comments on or before **[INSERT DATE 90 DAYS AFTER PUBLICATION IN THE FEDERAL REGISTER]**. Comments received after that date will be considered to the extent possible.

ADDRESSES: You may submit comments identified by the Docket Number PHMSA-2022-0111 by any of the following methods:

- *Federal eRulemaking Portal*: http://www.regulations.gov. Follow the instructions for submitting comments.
- *Fax*: 1-202-493-2251.
- *Mail*: Docket Management System; U.S. Department of Transportation, West Building, Ground Floor, Room W12–140, Routing Symbol M–30, 1200 New Jersey Avenue, SE, Washington, DC 20590.

- *Hand Delivery*: Docket Management System; Room W12-140 on the ground floor of the West Building, 1200 New Jersey Avenue, SE, Washington, DC 20590, between 9 a.m. and 5 p.m., Monday through Friday, except federal holidays.

Instructions: All submissions must include the agency name and Docket Number (PHMSA-2022-0111) for this notice. To avoid duplication, please use only one of these four methods. All comments received will be posted without change to the Federal Docket Management System (FDMS) and will include any personal information you provide.

Docket: For access to the dockets to read background documents or comments received, go to http://www.regulations.gov or DOT's Docket Operations Office (see **ADDRESSES**).

Privacy Act: In accordance with 5 U.S.C. 553(c), DOT solicits comments from the public. DOT posts these comments, without edit, including any personal information the commenter provides, to http://www.regulations.gov, as described in the system of records notice (DOT/ALL–14 FDMS), which can be reviewed at http://www.dot.gov/privacy.

Confidential Business Information (CBI): CBI is commercial or financial information that is both customarily and actually treated as private by its owner. Under the Freedom of Information Act (FOIA) (5 U.S.C. 552), CBI is exempt from public disclosure. If your comments responsive to this notice contain commercial or financial information that is customarily treated as private, that you actually treat as private, and that is relevant or responsive to this notice, it is important that you clearly designate the submitted comments as "CBI." Please mark each page of your submission containing CBI as "PROPIN." Submissions containing CBI should be sent to Ryan Larson, Standards and Rulemaking Division, 202-366-8553, Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation, 1200 New Jersey Avenue, SE, Washington, DC 20590-0001. Any commentary that PHMSA receives which is not specifically designated as CBI will be placed in the public docket for this notice.

FOR FURTHER INFORMATION CONTACT: Ryan Larson, Office of Hazardous Materials Safety, Standards and Rulemaking Division, 202-366-8553, e-mail: ryan.larson@dot.gov, or

Glenn Foster, Office of Hazardous Materials Safety, Standards and Rulemaking Division, 202-366-8553, e-mail: glenn.foster@dot.gov, Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation, 1200 New Jersey Avenue, SE, Washington, DC 20590-0001.

SUPPLEMENTARY INFORMATION:

I. Purpose

PHMSA is publishing this notice to (1) solicit information pertaining to how the potential use of recycled plastic resins in the manufacturing of specification packagings may affect hazardous materials transportation safety; (2) ensure transparency of its current policy pertaining to the use of recycled plastics in the manufacturing of specification packagings; (3) seek input on this policy to better inform potential regulatory changes; and (4) gather information for the evaluation of future approval requests and to better inform decisions pertaining to potential regulatory revisions and other related work.

II. Background

Plastic production contributes to planet-warming greenhouse gas emissions at every point in its life cycle. The process of drilling for plastic's source materials (oil and gas) includes methane leaking and flaring, and is often combined with clearing forests and wetlands that otherwise would have sequestered carbon. In addition, greenhouse gases are created from the processes that turn oil and gas into plastic. The process of recycling materials—especially recycling plastics—plays a vital role in combating climate change and reducing the amount of plastic waste in landfills. For example, the Environmental Protection Agency (EPA) states on its website that in 2018, plastic generation totaled 35.7 million tons in the United States, which was 12.2 percent of the municipal solid waste.[1]

[1] Plastics: Material-Specific Data | US EPA

PHMSA is aware through its participation in the development of international standards and regulations that an increasing number of countries are interested in expanding the use of recycled plastics in plastic packagings manufactured for hazardous materials. For example, the European Commission is considering a proposal with minimum targets for recycled content in certain plastic packaging, such as 30 percent by 2030 and 65 percent by 2040.[2]

Plastic packagings perform an integral role in ensuring that hazardous materials are transported safely and securely. Plastics are a vital source material for the manufacture of packaging used to transport hazardous materials around the world. Plastic is used to manufacture drums, jerricans, non-bulk composite packagings, and composite intermediate bulk containers (IBCs)—as well as some inner packagings that are part of combination packagings.

Consistent with the Administration's goals of reducing climate pollution and reducing the effects of per- and poly-fluoroalkyl substances (PFAS) on communities across the United States,[3] PHMSA is committed to taking actions that may extend the life cycle of existing plastic, including through reuse and recycling, and reduce the need for new plastics to limit the production of PFAS. Further, Section 207 of Executive Order 14057, "Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability," directs federal agencies to advance pollution prevention, support markets for recycled products, and promote a transition to a circular economy.[4]

Increasing the use of recycled plastics in packagings is one potential avenue to innovate within this complex issue. Further, advances in technology and operational cleaning processes may allow for new plastic articles to maintain high levels of consistency in the quality of the plastics at a molecular level and offer the potential for growth in the use of recycled plastics, including for the manufacture of plastic packagings used for hazardous materials.

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[2] https://environment.ec.europa.eu/system/files/2022-11/Proposal%20for%20a%20Regulation%20on%20packaging%20and%20packaging%20waste.pdf
[3] FACT SHEET: Biden-Harris Administration Launches Plan to Combat PFAS Pollution | The White House
[4] 86 FR 70935 (Dec. 8, 2021).

III. PHMSA's Current Policy on Recycled Plastics

While PHMSA has been committed to increasing the use of recycled plastics in packaging, it has traditionally taken an approach that corresponded to its understanding of the industry's ability to implement sufficient quality control actions to maintain packaging standards. The Hazardous Materials Regulations (HMR; 49 CFR parts 171-180) require approval from the Associate Administrator for Hazardous Materials Safety or a special permit to use recycled plastics in certain packagings[5] to transport hazardous materials. *See* 49 CFR 107.105 and 107.705. PHMSA has not exempted plastic packagings manufactured from recycled plastic resins from applicable performance testing specifications as required by Part 178, Subparts M or O of the HMR. Since 1997, PHMSA has issued approximately 10 approvals permitting manufacturers of plastic packagings to use recycled plastic resins provided strict controls are followed to ensure the quality of the packaging.[6] These packagings have been permitted only for use at the Packing Group II and III levels, preventing their use for the hazardous materials posing the greatest risk (i.e., Packing Group I). Further, minimum thickness requirements for plastic packagings must still be followed in accordance with 49 CFR 173.28(b)(4). Compatibility requirements for plastic packagings in 49 CFR 173.24(e) are still applicable, ensuring appropriate compatibility with the lading and safe rates of packaging permeation. As such, only plastic resins that have been prepared and evaluated under a manufacturer's quality assurance program may be used in the manufacture of recycled plastic packagings.

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[5] In accordance with the HMR, no used material other than production residues or regrind from the same manufacturing process may be used in the manufacture of specification plastic packagings unless approved by the Associate Administrator. See § 178.509(b)(1) for plastic drums and jerricans, § 178.522(b)(1) for composite packagings with inner plastic receptacles, § 178.707(c)(3)(iii) for composite IBCs, and § 178.925(b)(3) for rigid plastic large packagings.

[6] Examples of PHMSA CAA approvals for recycled plastics are available online at:
https://www.phmsa.dot.gov/hazmat/documents/approval/1_CA2012030016_2021125171.pdf/ApprovalsCA_19836_CAApproval-2d7175bc-0a37-413b-a95e-62b3cca6fa77
https://www.phmsa.dot.gov/hazmat/documents/approval/1_CA2011030036_2020094986.pdf/ApprovalsCA_18946_CA-Approval-e329d08c-d80a-4ab3-ade0-82bbc4bd1205
https://www.phmsa.dot.gov/hazmat/documents/approval/1_CA2011030038_2020095047.pdf/ApprovalsCA_18948_CA-Approval-40283db3-31c1-4cc8-bdaa-11309d6922f1

In the approvals, PHMSA has required that all recycled material selected for use must be cleaned of residue from the prior lading. Further, batches of not more than 250,000 pounds must be sorted and selected using the manufacturer's quality assurance program. The quality assurance program must identify the sources of the recycled material, their previous lading, and their tested metrics in accordance with designated testing procedures. PHMSA has not been asked and does not anticipate a request for approval to use recycled material that previously contained a Division 6.1 (poisonous) material, material that does not conform to melt index and density test specifications, or material that is otherwise determined to be unsuitable according to the manufacturer's quality assurance program. PHMSA has further required manufacturers to verify that each batch of recycled plastic material has the proper melt flow rate and density, consistent with that of the design type manufactured from recycled material. In addition, PHMSA has required that each batch of recycled resin demonstrate the following characteristics:

1. A melt index (HLMI), when tested in accordance with ASTM D-1238[7] at 21.6 kg and 190 °C, that does not exceed the following ranges:

- An HLMI range of < 4 must be within ± 1.5 grams per 10 minutes.
- An HLMI range of $\geq 4 < 8$ must be within ± 2 grams per 10 minutes.
- An HLMI range of $> 8 \leq 12$ must be within ± 2.5 grams per 10 minutes.

2. A density, when tested in accordance with either ASTM D-1505[8] or D-792,[9] within the range of 0.960 ± 0.02 g/cc.

Lastly, all plastic packagings manufactured from recycled plastic resins under the approvals must be tested more frequently than those plastic packagings manufactured from virgin resins. As an example, the periodic testing of drums must occur at least every 12 months and periodic testing of jerricans must occur at least every 30 days.

[7] ASTM D 1238-10: Standard Test Method for Flow Rates of Thermoplastics for Extrusion Plastometer.
[8] ASTM D 1505-18: Standard Test Method for Density of Plastics by the Density-Gradient Technique.
[9] ASTM D 792-20: Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement

In anticipation of interested stakeholders considering the availability of approvals for packaging made from recycled plastics as they develop business plans, PHMSA is seeking input on ways to facilitate innovation and acceptance without compromising safety. Consequently, PHMSA is interested in learning whether any manufacturers have avoided adopting more recent recycling technologies in the use of recycled resins in plastic packaging manufacturing due to approval requirements. PHMSA is soliciting input on this issue to better guide its efforts in promoting increased use of recycled plastic resins in the manufacturing of specification packagings.

IV. Request for Feedback

PHMSA requests comment on the following questions to assist in our evaluation of future approval requests and to better inform PHMSA-supported research and development, and potential regulatory revisions:

1. Are the controls (e.g., material characteristics, design and requalification testing, and manufacturers quality assurance program) in the current approvals adequate for broader adoption of recycled plastics? Are they too narrow or too burdensome? Are there additional controls that should be implemented to ensure safety while using recycled plastic resins?
2. Do current cleaning processes for recycled plastic resins adequately remove all contaminants of the prior lading? What additional cleaning methods are being considered?
3. What, if any, are the potential cost savings in using recycled resins? Has there been or is there an expected increase in demand for hazardous materials packaging containing recycled materials?
4. What would be the climate impact of using more recycled resins?

5. Should hazardous materials packagings composed of recycled plastic resins be limited to resins derived from used hazardous materials packagings (i.e., industrial packagings) or should other sources of plastics—such as plastics from consumer packagings—be allowed? How could PHMSA expand allowable materials sources in this area without adversely affecting the safety of packagings? What consensus standards are available to help facilitate this change in source materials?
6. What research could PHMSA conduct to characterize potential risks of transporting hazardous materials in packagings made of recycled resins?
7. Are there specific hazardous materials classes or divisions, including packing groups, that should not be allowed for use with recycled resins?
8. Are the hazardous materials compatibility requirements of the HMR adequate for use with packagings made from recycled resins or should there be additional considerations? If so, what are these considerations?
9. Should there be a limit to the number of times resins can be recycled, and if so, what should that limit be? How could PHMSA track this information?

PHMSA is also interested in learning whether any manufacturers have avoided adopting more recent recycling technologies in the use of recycled resins in plastic packaging manufacturing due to approval requirements. PHMSA is soliciting input on this issue to better guide its efforts in promoting increased use of recycled plastic resins in the manufacturing of specification packagings.

In conjunction with this notice, PHMSA is considering conducting a webinar to inform the public of its recycled plastics policy if there is sufficient feedback from this notice. Information regarding any future webinars will be made available on PHMSA's website at phmsa.dot.gov.

Issued in Washington, DC on April 10, 2023.

William S. Schoonover,
Associate Administrator for Hazardous Materials Safety,
Pipeline and Hazardous Materials Safety Administration.
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