

The attached guidance "Managing Container Glass in Accordance with Wisconsin's Land Disposal Ban" was developed to assist Material Recovery Facilities (MRFs) to understand their commitments in managing container glass as a self-certified MRF, to assist landfills that want to use container glass within the footprint of their landfill by explaining what is needed for department review and approval, and to help both facility types understand when container glass may be disposed of. This guidance was prepared by the DNR's Waste and Materials Management Program. This guidance relates to the DNR's draft guidance number WA1835 titled "Alternative Glass Use for Options for MRFs", which is posted for public comment concurrently.

The department is now soliciting comments on this draft guidance from external stakeholders. Once the 21 day notice period is complete, all comments will be considered, revisions will be made to the guidance as needed, and final guidance will be made available to the appropriate internal and external stakeholders. Comments related to the "Managing Container Glass in Accordance with Wisconsin's Land Disposal Ban" draft guidance document should be sent to Casey Lamensky at Casey.Lamensky@wisconsin.gov.

DRAFT
**Managing Container Glass in Accordance
with Wisconsin's Land Disposal Ban**



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Background:

The typical single-stream Material Recycling Facility (MRF) crushes glass with other materials before sending them across an initial screen where the 2-inch minus glass fragments fall out along with anything else that is heavy enough and small enough to fall through the screen – paper shreds, batteries, plastic caps and other fragments, dirt and rocks, etc. This mixture becomes the MRF's glass stream. The department has generally distinguished between residual crushed glass, which the program has defined as a material generated in the process of making a three-mix crushed glass stream from the same feedstock and three-mix crushed glass which is container glass received and processed by a MRF that may either include or exclude the residual crushed glass stream. Both residual crushed glass and three-mix crushed glass may contain varying proportions of glass fragments, paper, plastic and non-recyclable items.

Due to the price of transporting glass, the limited number of outlets for three-mix crushed glass (currently only one cullet to cullet recycler in Wisconsin), and the very low price, often a negative price, that recipients of glass pay for this material, the department has received several requests from landfill operators to be permitted to use three-mix crushed glass as daily cover and for other beneficial reuse in landfills.

MRF Processing Compliance:

MRFs that are self-certified under s. NR 544.16, Wisconsin Administrative Code (Wis. Adm. Code), as part of an effective recycling program have requirements they must meet for managing certain land disposal banned items including container glass. MRFs are required to, among other items, “maintain recyclables in a marketable condition,”^[1] (s. NR 544.16(1)(c) Wis. Adm. Code), provide to the department the “procedures used to minimize residual material,” (s. NR 544.16(3)(a)14., Wis. Adm. Code), and certify “that the material recovery facility produces recovered recyclable materials in accordance with market quality specifications” (s. NR 544.16(3)(a)15., Wis. Adm. Code).

^[1] RUs and haulers are required to maintain materials in marketable condition for delivery to the MRF in accordance with s. 544.05(1)(a)3., Wis. Adm. Code, and s. NR 502.06(4)(f), Wis. Adm. Code, respectively.

Code dictates that MRFs cannot design their process to increase the amount of residual crushed glass they create (s. NR 544.16(1)(c), Wis. Adm. Code). Rather, they must do their best to process glass in a manner that creates the smallest amount of residual material possible relative to their production of marketable materials (s. NR 544.16(3)(a)14., Wis. Adm. Code), and they are required to create a product that meets standards for the markets they serve (s. NR 544.16(3)(a)15., Wis. Adm. Code). (See Appendix A for current market standards. These markets are not limited to cullet to cullet recycling. See WA1835 “Alternative glass use options for MRFs” for more information.)

Landfill Beneficial Reuse Compliance:

The department will consider proposals for the beneficial reuse of three-mix crushed glass within a landfill under the authority of s. 287.07(7)(f), Wisconsin Statutes (Wis. Stats), which allows materials banned from land disposal to be placed in a landfill if those materials are being beneficially reused and if that use has been approved as part of the disposal facility’s plan of operation. For three-mix crushed glass to be considered for beneficial reuse in a landfill, a modification of the landfill’s plan of operation is required. Plan modification submittals should include:

- Evidence that the three-mix glass material will be effective in the proposed beneficial reuse.
- An analysis comparing providing the glass to two known non-landfill markets with the cost of the proposed landfill beneficial reuse. This analysis must be specific to the MRF that would be generating the glass in the plan modification proposal. This cost analysis should include transportation costs and the cost/value of supplying the three-mix glass to the next user compared to the transportation costs and the cost/value of supplying the three-mix glass to the landfill. The cost analysis may also include any costs that a MRF may spend processing the glass to marketable conditions and the cost that a MRF may spend processing the glass to the specifications for the proposed landfill beneficial reuse but these costs must be distinguishable from other costs.
- Detail showing that the cost estimate provided to the MRF from the next user was based on glass that met market standards (see Appendix A). If a facility is struggling to receive responses from next users, evidence of two attempts to receive pricing information is also acceptable.

All plan modification reviews for landfill beneficial reuse of three-mix crushed glass will consider the availability of markets and glass market values. Because markets may change over time, approvals will be limited to three year sunset dates. It is the facility’s responsibility to request an extension of the approval.

Disposal Compliance:

For rare cases where glass cannot be processed to market standards or to the specifications of the beneficial reuse, the department has authority to grant a written waiver allowing the glass

to be disposed of in a landfill as waste. Waivers would only be allowed for specific instances where the glass became unusable due to unforeseen circumstances and would not be issued for routine management. Waiver requests for the glass must meet the requirements of s. 287.07(7)(g), Wis. Stats.

Section 287.11(2m)(b), Wis. Stats., and ss. NR 544.14(2), Wis. Adm. Code, require the department to grant variances for land disposal banned items, including container glass, if requested by the responsible unit and if the cost of selling the processed material is greater than \$40/ton adjusted for inflation since 1989 (\$76.49/ton in 2016 using the US Bureau of Labor Statistics' Consumer Price Index inflation factor) or if the cost of selling the processed material exceeds the cost of disposal. The cost comparisons for a variance are for transportation as well as sale/disposal as specified in s. 287.11(2m), Wis. Stats. The variance is issued to an RU and allows the RU to stop requiring separation of the material from trash and to dispose of collected material in a landfill even if separated for recycling without jeopardizing its effective program status. The department has not seen glass prices reach this level to date.

Appendix A: Glass Market Standards 2017^[2]

Spec	Strategic Materials – Glass Cullet (WI, MN, IL)	Mid America – Glass Cullet (IA)	Sandblast Media	Fiberglass
Max % contamination	10%	10%	15%	15%
Size requirements	Max of 12% below 3/8"	3/4" - 1/2" with minimal fines	Course: 20 to 40 mesh Medium: 40 to 70 mesh Fine: 70 to 100 mesh	Below 12 mesh
Max % ceramic glass	2%	1%	Not set	Not set
Max percent "tramp metal" (aluminum cans siding window frames and household utensils)	Not set	1%	0%	0%
Max % moisture	5%	Not set	0.5%	0.5%
Max % organics	Not set	Not set	0.25%	0.25%

WI DOT – Base, Subbase and Subgrade Aggregate^[3] use up to 12% of total aggregate
Must be substantially free of deleterious materials.
Must be uniform material conforming to the predominant material (crushed gravel, crushed concrete or crushed stone). The predominant materials must sit on a No. 10 sieve.
Must meet standards for gradation, wear, soundness, liquid limit, plasticity and fracture the same as the predominant material.

^[2] A list of glass processors in North America is maintained by the Glass Packaging Institute and can be found here: <http://www.gpi.org/glass-resource-locator>. ISRI, the Institute for Scrap Recycling Industries, has also published some specifications for glass recycling. They have acknowledged there is a sliding scale of acceptable material and published the absolute limits that crushed glass can be recycled at. These limits are not the industry standards currently found in the upper Midwest. Their analysis can be found here: [http://www.isri.org/docs/default-source/random/mrf-glass-specifications-11-7-16-\(002\).pdf?status=Temp&sfvrsn=0.7635963139323592](http://www.isri.org/docs/default-source/random/mrf-glass-specifications-11-7-16-(002).pdf?status=Temp&sfvrsn=0.7635963139323592).

^[3] Additional detail can be found in Wisconsin DOT Roadway Standards, 2017 Standard Specifications, Section 301

Appendix B: Relevant Statute and Code References:

Disposal Bans:

- S. 287.07(4)(d), Stats., bans glass containers from disposal in a landfill.
- S. 287.07(7)(g), Stats., provides an exemption for glass containers to be disposed of in a landfill under very specific circumstances with a written waiver from the department.
- S. 287.11(2m)(b), Stats., allows the department to grant variances to the glass container recycling requirements under certain cost situations.

Alternative Uses in Landfills:

- S. 287.07(7)(f), Stats., allows container glass to be placed in landfills if it is being beneficially reused in the landfill and its use is approved in the landfill's Plan of Operation Approval.
- S. NR 504.06(5)(e), Wis. Adm. Code, describes the specifications required for leachate trench backfill in landfills.
- S. NR 506.05, Wis. Adm. Code, describes the purpose of daily cover.
- S. NR 506.055, Wis. Adm. Code, lists the information that is required to be submitted when proposing an alternate daily cover.

MRF Requirements:

- S. NR 544.16(1)(c), Wis. Adm. Code, requires a MRF to maintain materials in a marketable condition.
- S. NR 544.16(3)(a)13., Wis. Adm. Code, requires information on the total quantity and percentage of residuals created in the previous year when self-certifying.
- S. NR 544.16(3)(a)14., Wis. Adm. Code, requires a MRF to describe the procedures they will use to reduce residuals when self-certifying.
- S. NR 544.16(3)(a)15., Wis. Adm. Code, requires a MRF to certify that they will produce recyclables in accordance with market quality specification when self-certifying.
- S. NR 544.16(4)(a), Wis. Adm. Code, requires a MRF to certify that they are operating in accordance with their original self-certification.
- S. NR 544.16(4)(d), Wis. Adm. Code, requires a MRF to report the tons and percent of residuals generated over the course of the year.
- S. NR 544.16(5), Wis. Adm. Code, allows the department to invalidate the self-certification of a MRF not operating in accordance with their original or yearly self-certification.

RU Requirements:

- S. NR 544.05(2)(b), Wis. Adm. Code, requires RUs to use a self-certified MRF as a part of their effective recycling program.
- S. NR 544.14(2), Wis. Adm. Code, allows RUs to request variances to the glass container recycling requirements under certain cost situations.
- S. NR 544.14(3)(a), Wis. Adm. Code, allows the department to grant variances to the glass container recycling requirements under certain cost circumstances.

Contact (608) 266-2111 or DNRWasteMaterials@wisconsin.gov for further information.

Disclaimers: This document is intended solely as guidance and does not include any mandatory requirements except where requirements found in statute or administrative rule are referenced. This guidance does not establish or affect legal rights or obligations and is not finally determinative of any of the issues addressed. This guidance does not create any rights enforceable by any party in litigation with the State of Wisconsin or the Department of Natural Resources. Any regulatory decisions made by the Department of Natural Resources in any manner addressed by this guidance will be made by applying the governing statutes and administrative rules to the relevant facts.

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