



Guidelines for Land Application of By-Product Limes

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This fact sheet is intended to provide guidance for producers and applicators of uncontaminated by-product limes used as agricultural liming materials.

By-product limes

By-product limes are defined in **Minn. R. 7035.0300, subp. 9a Solid Waste Management Definitions**, as waste liming materials that are produced when lime is used for processes such as treatment of drinking water, processing of sugar, acetylene production, and miscellaneous other processes. An additional source of by-product lime would be lime kiln dust.

Classification of by-product lime

By-product lime material is a solid waste material. If a solid waste material can safely and effectively be used for another purpose, it can be granted a beneficial use determination under the Minnesota Pollution Control Agency (MPCA). **Minn. R. 7035.2860: Beneficial Use of Solid Waste.** Uncontaminated by-product limes can be reused in agriculture as a soil amendment and are listed under a **Standing Beneficial Use Determination (SBUD) in item P of Minn. R. 7035.2860, subp. 4 which reads:**

“Uncontaminated by-product limes when used as agricultural liming materials and distributed in accordance with chapter 1508 and Minnesota Statutes, sections 18C.531 to 18C.575. Application rates for by product limes must be based on the lime recommendations of the University of Minnesota Extension Service and cannot cause the soil pH to exceed 7.1 after application. Site-specific application rates for by-product lime must be determined by

an individual that has a background and understanding of crop nutrient management such as a crop consultant or University of Minnesota Extension Specialist. Recommended rates for lime can be obtained from the University of Minnesota Extension publication “Fertilizer Recommendations for Agronomic Crops in Minnesota” BU-06240-S, and the Minnesota Department of Agriculture publication “Ag-Lime Recommendations in Pounds ENP per Acre” available on their Web site.”

The guidelines in this document apply to uncontaminated by-product limes covered under the SBUD. Contaminated by-product limes can be reviewed by the MPCA for a Case Specific Beneficial Use Determination (CSBUD) per **Minn. R. 7035.2860, subp. 5**, or may require an individual land application permit. Any liming materials that cannot meet either reuse classification shall be handled and disposed of as solid waste at an MPCA permitted facility.

Determination of uncontaminated/contaminated

By-product lime can become contaminated by the treatment process in which it was used and/or if other process waste streams are mixed with by-product lime. Examples of potential contamination are water treatment plant filter backwash, chemical addition, and purification processes for

removal of metals or other contaminants. Table 3 of this document, provides the pollutant limits for uncontaminated by-product lime. If sample results exceed these pollutant limits or if there is any question whether a by-product lime is contaminated, please contact the MPCA staff listed at the end of the document.

Regulation of by-product lime

Minnesota Pollution Control Agency: Uncontaminated by-product limes used as an agricultural liming material do not require a permit or approval from the MPCA, as they are covered under the SBUD.

It is important to recognize that all by-product liming materials fall under the Solid Waste rules as stated in **Minn. R. 7035.2860 subp. 3. Regulatory Exemption:** Unless specified otherwise by the Agency in a beneficial use determination or permit, a material remains a solid waste until it is incorporated into a manufactured product or utilized in accordance with a standing or case-specific beneficial use determination. Until the time that this regulatory exemption occurs, the material must be stored in compliance with **Minn. R. 7035.2855 Solid Waste Storage Standards** and managed as a solid waste in accordance with this chapter.

The solid waste storage standards provide flexibility in storage design with the goal of preventing material from migrating into ground or surface waters and preventing nuisance conditions at the storage facility. These standards apply both at the point of waste generation and at the land application site. Additional requirements may exist at the local government level.

Additionally, all by-product lime materials shall be managed in accordance with **Solid Waste regulations Minn. R. 7035.0800, subp. 3 Collection and Transport of Solid Waste, Spills.** By-product lime must be transported in a vehicle that complies with all Department of Transportation requirements, including the prevention of leaking or spilling of materials. In the event of a loss or release of by-product lime material prior to land application, the responsible party must comply with **Minn. Stat. § 115.061: Duty to Notify.** This includes notifying the State of Minnesota Duty Officer of the event and taking immediate action to minimize or avoid surface water impacts by containing and recovering the released material. If there is potential that the released material came in contact with a pollutant, the material must be analyzed prior to land application and/or land filled at an MPCA permitted facility.

Minnesota Department of Agriculture (MDA): The MDA has a licensing program for all distributors and producers of agricultural liming materials. These are defined as materials that have an effective neutralizing power of 20 percent or greater. Since most by-product limes meet this definition, distributors and producers must be licensed by MDA as required under **Minn. R. ch. 1508: Agricultural Liming Material.** For more information please call 651-201-6275 or look on their Web site at www.mda.state.mn.us.

Local Units of Government: It is important to check with cities, townships, and counties to determine what their regulatory requirements are for land application, stockpiling, or storage. Proper notification will ensure that all requirements are met before land application commences and also allows local government staff to respond to concerned citizens. Each contractor should have information available on routes used for hauling, storage, management, and application methods.

Environmental impacts and nuisance conditions

Generators and appliers are responsible for storing, managing, and land applying by-product limes in a way that prevents contamination of ground and surface waters and prevents nuisance conditions, such as off site dust or odors, from occurring. Specific land application information is included in the SBUD for uncontaminated liming materials. The SBUD references the University of Minnesota Extension Service Publication “Fertilizer Recommendation for Agronomic Crops in Minnesota” BU-06240-S and the Minnesota Department of Agriculture publication Ag-Lime Recommendations in Pounds ENP per acre.

Until by-product lime is applied and incorporated on agricultural land or disposed of at a solid waste facility, the generator of this waste remains accountable for the liming material. Poorly managed by-product limes may result in MPCA enforcement action and require the generator or applier to obtain a permit. Past enforcement has held both generators and appliers responsible for poor management of by-product limes.

The MPCA recommends that generators of by-product limes contract with applicers that have Type IV operator certification. This certification ensures that you are working with contractors familiar with state requirements for land application covered **under Minn. R. ch. 7048, Waste Disposal: Operators and Inspectors.**

Additional information on Best Management Practices to use for agricultural lime application are included in this guidance. Following these practices will reduce the risk of creating nuisance conditions that can result in enforcement actions from the MPCA and/or other regulating parties.

Recommendations for storage of by-product lime material

Permanent storage locations of lime material, or any lime material remaining on site for more than three years, may require a Solid Waste Storage Permit. Small quantities of lime materials may be stockpiled temporarily on farm fields without a permit from the MPCA. It is recommended that materials be stockpiled no longer than seven months on the land application site. Local units of government may also have restrictions on land application and stockpiled materials.

Under the solid waste storage standards, areas used for the storage of by-product limes must be managed to prevent runoff into surface waters, contamination of groundwater, and nuisance conditions from occurring. The following recommendations will assist in prevention of these problems.

- Storage should not occur in areas with greater than two percent slope.
- Storage sites should not be located on areas subject to flooding.

Recommended Best Management Practices

All criteria in this section, including slope restrictions, site suitability and separation distances as provided in the following tables should be met for a site to be considered suitable for land application.

Contact Information

For assistance or more information, you may contact the MPCA staff in the regional office where your facility is located or dial the main line at 651-296-6300 or 800-657-3864. Information on regional offices can be found at

<http://www.pca.state.mn.us/about/regions/index.html>.

Table 1
Minimum Separation Distances from Land Application Sites

Feature		Surface Applied	Inject or Incorporate within 48 hours
Downgradient lakes, rivers, streams, Type 3, 4 and 5 wetlands, intermittent streams, tile inlets connected to surface waters and sinkholes	Slope 0-6 percent	200ft	50ft
	Slope 6-12 percent	Not Allowed	100ft
	Winter (Slope 0-2 percent)	600ft	Not Applicable
Grassed water ways	Slope 0-6 percent	100ft	33ft
	Slope 6-12 percent	Not allowed	33ft

Slope Restrictions: The slope restrictions in Table 2 are recommended for preventing runoff of by-product limes from land application site. Winter application should not occur on areas that have greater than 2 percent slope.

Table 2
Slope Restrictions for Application Sites

Slope Percent	Surface Application	Inject or Incorporate within 48 hours
0-6	OK	OK
>6-12	Do not apply	OK
>12	Do not apply	Do not apply

Table 3
Pollutant Limits for By-Product Limes

Pollutant	Monthly average concentration (milligrams per kilogram) dry weight basis
Arsenic	41
Cadmium	39
Copper	1500
Lead	300
Mercury	17
Nickel	420
Selenium	100
Zinc	2800
Radium 226	30 pCi/g (1)

1 The soil concentration shall not exceed 5 pCi/g- Radium 226