

IOWA DEPARTMENT OF NATURAL RESOURCES

LEADING IOWANS IN CARING FOR OUR NATURAL RESOURCES

Land Application of Industrial Waste

This document is intended for use by persons or operations that generate industrial waste suitable for land application to help them determine what type(s) of regulatory oversight and/or permit is required for land application. Land application of sewage sludge (biosolids), animal manure, and petroleum contaminated soil are regulated separately from other wastes and are not the focus of this document.

1. Is the material a fertilizer or soil conditioner?

- Is the material managed as a valuable commodity, i.e. does the generator sell the material?
- Is the intent of land applying the material to replace or offset the use of more traditional fertilizers or soil conditioners?
- Are claims or guaranties made to land owners concerning the nutrient value?
- Do the N, P, and K, values equal 20 when added together?
- Is the material capable of changing the pH of the soil?
- When added to the soil or applied to plants would the material produce a favorable growth, yield or quality of crop or soil flora or fauna or other improved soil characteristics?
- Does the material provide any of the following plant nutrients at or above the level indicated in the chart above?

<i>Element</i>	<i>Percent</i>
Calcium (Ca)	1.00
Magnesium (Mg)	0.50
Sulfur (S)	1.00
Boron (B)	0.02
Chlorine (Cl)	0.10
Cobalt (Co)	0.0005
Copper (Cu)	0.05
Iron (Fe)	0.10
Manganese (Mn)	0.05
Molybdenum (Mo)	0.0005
Sodium (Na)	0.10
Zinc (Zn)	0.05

If the answer to one or more of these questions is “yes” then it is possible the material could be registered and regulated by the Iowa Department of Agriculture and Land Stewardship as a fertilizer or soil conditioner and not a waste. Any person who manufactures, mixes, blends, mixes to customers order, offers for sale, sells, or distributes any fertilizer or soil conditioner in Iowa must first obtain a license from the secretary of agriculture.

Fertilizer and soil conditioners submitted for registration may be required to be tested for a minimum of two growing seasons. For a new product to be registered as a fertilizer the product claims may be substantiated by one of two methods:

- (1) efficacy testing; or
- (2) substantiation of data relevant to Iowa crops and soils. See Iowa Administrative Code (IAC) Section 21—Chapter 43.21(200) for more details.

Once registered as a fertilizer the product is subject to semiannual inspection fees, tonnage tax and must comply with secondary containment rules in IAC Section 21—Chapter 44(200).



If the material is capable of changing the pH of the soil it is possible for the material to become a liming agent. The effectiveness of the liming agent is based on the solid material in the product. If the product contains liquid, the effective calcium carbonate equivalent (ECCE) is reduced accordingly. Liming agent regulations are found in Iowa Code Chapter 201A and IAC Section 21—Chapter 43. Licensing the material as a liming agent negates any nutritional claims made on the product.

2. Is the material an industrial sludge or solid waste?

To be land applied under IAC 567- Chapter 102 Division II “Land Application of Wastes”, the material must first be a waste and secondly be either a solid waste or an industrial sludge.

For a material to be an industrial sludge it must be generated by one of the following:

- A commercial or industrial wastewater treatment plant
- A potable water supply treatment plant
- An air pollution control device

If the material is generated by one of the above, it may be land applied according to the provisions in IAC 567- 102.100 through 567-102.108 as an industrial sludge.

"Solid waste" is defined as garbage, refuse, rubbish, and other similar discarded solid or semisolid materials. Whether a waste material is solid or semisolid is determined by conducting a paint filter test. The paint filter test is done by placing a 100-milliliter or 100-gram representative sample of the waste into a standard mesh number 60 (fine mesh size) conical paint filter for five minutes. Any free liquid visible below the funnel indicates sample failure. If the sample passes the paint filter test, it may be land applied according to the provisions in IAC 567-102.100 through 567-102.108 as a solid waste.

3. Is the material a wastewater?

If the material is not registered as a fertilizer or soil conditioner and does not meet the criteria to be an industrial sludge or a solid waste, it is by definition wastewater. Wastewater cannot be land applied under IAC-567 -102.100 through 567-102.108 and is regulated by the Department of Natural Resources’ Wastewater Engineering and National Pollutant Discharge Elimination System (NPDES) Sections.

Contacts:

DNR Solid Waste: Theresa Stiner, 515-721-7979, Theresa.Stiner@dnr.iowa.gov

Department of Agriculture (IDALS): Lloyd Krutzfeldt, 515-975-7183 Lloyd.Krutzfeldt@iowaagriculture.gov

DNR Wastewater Engineering: Thabit Hamoud, 515-725-8432 thabit.hamoud@dnr.iowa.gov

Resources:

IAC-21 chapter 43 <https://www.legis.iowa.gov/DOCS/ACO/IAC/LINC/Chapter.21.43.pdf>

IAC-21 chapter 44 <https://www.legis.iowa.gov/DOCS/ACO/IAC/LINC/Chapter.21.44.pdf>

IAC-567 chapter 102 <https://www.legis.iowa.gov/docs/iac/chapter/08-19-2026.567.102.pdf>

Wastewater Land Application <https://www.iowadnr.gov/environmental-protection/water-quality/wastewater-construction/wastewater-construction-permits/land-application-permits> Paint Filter Test

<http://www.epa.gov/osw/hazard/testmethods/sw846/pdfs/9095b.pdf>