



Alternate Daily Cover Spray-On Cover Materials

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For several years, the Minnesota Pollution Control Agency (MPCA) has allowed landfills to use various spray-on cover materials as an approved alternate daily cover (ADC). The MPCA Commissioner granted approvals on a case-by-case basis with the stipulation that landfill operators would follow manufacturer recommendations for applying the cover material. Routine facility inspections revealed several instances of inadequate covering of the waste while using these spray-on materials. As a result, MPCA staff contacted the manufacturers or distributors of the most commonly used spray-on cover materials at Minnesota landfills to clarify appropriate application techniques and criteria.

Based on their response, MPCA staff has developed the following guidance for applying spray-on cover materials which identifies operating conditions for their proper use.

Regulatory Requirement for Daily Cover

MSW Landfills

United States Environmental Protection Agency (USEPA) regulation 40 CFR 258.21 requires that solid waste be covered with six inches of earthen material or approved alternate material at the end of each working day.

Minn. R. 7035.2815, subp. 6, item A requires, in part, that the depth of the cover material be sufficient to cover the waste completely and must be at least six inches of soil or an approved ADC. Before approving a proposed cover system, the

Commissioner considers the characteristics of the proposed cover material, the characteristics of the solid waste, the leaching potential of the solid waste, the design and operation of the facility, and the potential for nuisance conditions.

Industrial Landfills

Minn. R. 7035.1700 item D requires industrial solid waste to be compacted as densely as practicable and covered after each day of operation, or as specified by the Commissioner, with a compacted layer of at least six inches of suitable cover material.

Daily Cover Goals

According to the Statement of Need and Reasonableness (SONAR) developed as part of the November 1988 rule making, daily cover is intended to:

- Control blowing litter
- Reduce vector and animal intrusion
- Prevent surface water ponding and infiltration
- Control gas movement
- Prevent erosion of surface and side slopes
- Reduce wind erosion
- Minimize dust generation and movement
- Minimize aesthetic problems (like odor)
- Prevent fire hazards
- Provide surface for vehicular traffic.

To comply with these requirements, landfills usually use six inches of soil as daily cover material. To save air space and costs, some facilities have requested and received approval for use of other materials.

Commonly Used Spray-On Cover Materials

The three most commonly used spray-on cover systems at Minnesota landfills are ConCover®, Topcoat® and Posi-shell®.

ConCover



ConCover is a blend of polymers and a recycled fiber like newspaper. ConCover is mixed with either landfill leachate or water to create a slurry that is sprayed on the waste. Common trade names are ConCover, Concover 180, and ProGuard SB.



Example of proper application of ConCover

Topcoat

Topcoat is an alternative daily landfill cover material manufactured from post-consumer paper, chemicals and other proprietary ingredients. Like ConCover, it is mixed on site and sprayed as a slurry as shown in the picture below.



Example of proper application of Topcoat

Posi-Shell

Posi-Shell is a spray-applied, cement mortar coating, similar to stucco. Posi-Shell's is a cementitious (cement-like) mineral binder reinforced with structural composite fibers as shown here.



Example of Posi-Shell

Other

Other spray-on cover materials have also been approved for use as ADC at MN landfills. This document is not intended to provide a list of all possible spray-on cover materials as new materials may be developed in the future.

Recently, a Minnesota landfill completed a demonstration research project that explored mixing waste latex paint with commercial spray-on cover materials. Results showed that the mixture with waste latex paint (shown below in the mixing unit) was

superior in durability compared to a mixture of these products with water or leachate. As a result, the MPCA has determined that mixing commercial spray-on cover materials with waste latex paint is an acceptable ADC



alternative.

Mixture of waste latex paint and spray-on cover material

Facilities have approached the MPCA about making their own cellulose and fiber mixtures to replace commercial brands. Since commercial brands have undergone rigorous testing before licensing, any new “home brew” mixtures will need to undergo similar testing requirements through a demonstration research project before receiving MPCA approval for long-term use.

Application Procedures

When using spray-on cover materials, facilities should follow the manufacturer’s recommendations for proper mix ratios, setting times and application rates. Compact waste within the working face before applying the ADC to ensure proper coverage of the waste. Fully cover waste materials with the ADC. Spotty or partial coverage, as shown in the following photos, is not acceptable.



Example of inadequate application of cover material



Example of inadequate application of cover material

In addition to the manufacturer’s recommendations, for spray-on covers to be an acceptable ADC and comply with Minnesota Solid Waste Management Rules, the landfill owner/operator must also follow these procedures:

- If using a commercial product, landfill owners/operators must provide written documentation to the MPCA that they have received training in the proper mixing, application and use of the spray-on material from the manufacturer, or its representative.
- The person who has received the manufacturer’s training must be the one to apply the spray-on cover or must provide direct supervision of the landfill staff doing the application to ensure that the material is properly applied.



Applying a spray-on cover material

- Wastes to be covered with spray-on materials must first be properly and adequately compacted to make as smooth a surface as possible.
- If uneven waste surfaces are present, spray-on materials must be applied from at least two different angles to ensure complete coverage of the waste.
- Spray-on materials used at the end of the working day to meet the daily cover requirement may only be applied on days when the landfill is open for business on the following day.
- Six inch soil cover must be used before weekends and holidays when the facility will be closed.
- Unless otherwise specifically approved by the MPCA in writing, spray-on materials may not be used in an area where additional waste or cover material will not be placed within the next 48 hours.
- Six inches of soil cover must be used whenever weather conditions indicate a potential problem with the application of the spray-on material (excess wind, rain, extreme cold temperatures, etc.)
- Landfill owners/operators must pay close attention to the weather forecast to ensure that there will be adequate time for the spray-on material to set up prior to any rain events.
- If operations at the landfill are adversely affected in any way due to use of the spray-on ADC material, its use must be discontinued.
- If problems arise relative to excessive odors, litter, dust, vectors, or erosion due to the use of the spray-on ADC material, as documented by MPCA compliance staff, its use must be discontinued.

- Landfill operators are encouraged to keep a log on a per batch basis that identifies the amount of product used, the amount and type of liquid used to make up the batch, the area covered and the numbers of days that this area was covered by the batch, as well as any notes of problems or benefits associated with the use of a particular batch.

Blending with Leachate

Before you mix landfill leachate with a spray-on cover material, you must conduct a risk evaluation for worker exposure specific to your site. The evaluation must use facility leachate data and be completed before requesting approval for use of the leachate-based material.

Worker health and safety issues are outside of MPCA jurisdiction; MPCA approval of a leachate-based ADC does not suspend or relieve the landfill owner/operator from compliance with other applicable laws. The landfill owner/operator is responsible for employee safety and should evaluate any potential risks associated with the use of leachate-based ADC material. The facility must comply with an appropriate OSHA health and safety plan and follow manufacturer recommendations for product safety and protocol for blending leachate with the spray-on cover material.

If leachate seepage or surface water runoff problems exist or are created with the use of a leachate-based spray-on material, its use must be discontinued.

Anyone entering the immediate working face area of a landfill during application of leachate-based spray-on material should be notified that inhalation of this material may pose a health hazard.

Contact Information

For more information on obtaining approval for or the proper use of spray-on cover systems, contact 651-296-6300 and ask for the solid waste engineer or compliance staff assigned to the region in which your facility is located.