

GENERAL PERMIT WMGR047
BENEFICIAL USE OF STAINLESS STEEL SLAG

Rev. 4/2011

A. Description:

This approval authorizes the beneficial use of the “residual aggregate” generated from the extraction of stainless steel from the stainless steel slag. The authorized beneficial uses under this general permit are limited to use as an agricultural liming agent, as an ingredient in specialty fertilizers and an ingredient in mine grouting material.

The activities authorized by this permit shall not harm or present a threat of harm to the health, safety, or welfare of the people or environment of this Commonwealth. The Department may modify, suspend, revoke, or reissue the authorization granted in this permit if it deems necessary to prevent harm or the threat of harm to the public health, the environment, or if the activities cannot be adequately regulated under the conditions of this permit.

B. Determination of Applicability Requirements:

Persons or municipalities that propose to beneficially use stainless steel slag by operating under the terms and conditions of this general permit after the date of permit issuance must apply for and obtain a “Determination of Applicability” (“DOA”) from the Department prior to commencing authorized activities under the general permit. The request shall be sent to the appropriate Regional Office of the Department that has jurisdiction for waste-related activities in the county where the stainless steel slag will be beneficially used. A completed Form 20 (Application for a Municipal or Residual Waste General Permit), along with a DOA application fee in the amount identified in Section A (General Information) of the Form 20 must be submitted to the appropriate Regional Office. Checks shall be made payable to the “Commonwealth of Pennsylvania.”

C. Operating Conditions

1. All activities conducted under the authorization granted in this permit shall be conducted in accordance with the permittee's application. Except to the extent that the permit states otherwise, the permittee shall beneficially use the residual aggregate as described in the approved application.
2. The residual aggregate may be used as an agricultural liming agent provided the pH is between 9.0 and 12.5, the calcium carbonate equivalency (CCE) is at least 70 percent, and the following levels for either Option 1 or Option 2 are not exceeded:

GENERAL PERMIT WMGR047
BENEFICIAL USE OF STAINLESS STEEL SLAG

Rev. 4/2011

| PARAMETER | Option 1 ^a Limit Total (mg/kg) ^c | Option 2 ^b Total (mg/kg) ^c | Option 2 ^b Leachable (mg/L) ^d |
|--|--|--|---|
| Antimony | 6.75 | 88 | 0.15 |
| Arsenic | 29 | 29 | 0.25 |
| Cadmium | 2.5 | 47 | 0.125 |
| Chromium, Total ^e | | | 2.5 |
| Chromium(VI) | 50 | 94 | |
| Copper | 1,500 | 1,500 | 25 |
| Iron | 66000 | 66000 | 7.5 |
| Lead | 112.5 | 500 | 0.125 |
| Manganese | 31,000 | 31,000 | 2.5 |
| Mercury | 1 | 66 | 0.05 |
| Molybdenum ^e | | | 4.375 |
| Nickel | 50 | 420 | 2.5 |
| PCBs, Total (for landfilled stainless steel slag only) | | | |
| Residential uses | 1 ^f | 1 ^f | |
| Non-residential uses | 2 ^f | 2 ^f | |
| Selenium | 25 | 1,100 | 1 |
| Sodium | 3500 | 3500 | |
| Thallium | 2.2 | 15 | (Report only) |
| Zinc | 1,000 | 2,800 | 50 |

^aOption 1: There must be at least 4 feet between the lowest area where residual aggregate is placed and the seasonal high water table, perched water table or bedrock unless otherwise authorized in writing by the Department.

^bOption 2: The total and leachate levels must be met. There must be at least 4 feet between the lowest area where residual aggregate is placed and the seasonal high water table, perched water table or bedrock unless otherwise authorized in writing by the Department.

^cOn a dry weight basis

^dThe toxicity characteristic leaching procedure (EPA Method 1311) or the synthetic precipitation leaching procedure (EPA Method 1312) or other leaching procedure approved by the Department shall be used for all leaching analyses.

^eAnalysis for total chromium (III plus VI) and total molybdenum are required to provide end user with data as required under notification in Condition 24.

^fThe sample preparation for PCB determinations shall be EPA Method 3545.

Note: Options 1 and 2 may be used in combination on a constituent-specific basis.

GENERAL PERMIT WMGR047
BENEFICIAL USE OF STAINLESS STEEL SLAG

Rev. 4/2011

Should the residual aggregate contain other constituents which do not meet the requirements of §288.623(a) (relating to minimum requirements for acceptable waste) or which pose a threat of harm to human health or the environment, the residual aggregate shall not be placed directly into the environment.

The above determinations may be based upon the 90 percent upper confidence level using *Test Methods for Evaluating Solid Waste* (EPA SW-846) as guidance for the statistical treatment of data.

3. The residual aggregate may be used an ingredient in mine grouting material provided the residual aggregate will undergo cementitious reactions after placement, the pH is between 9.0 and 12.5 and the following levels are not exceeded:

| PARAMETER | Leachable ^a (mg/L) |
|---|----------------------------------|
| ^a Antimony | 0.15 |
| Arsenic | 0.25 |
| Cadmium | 0.125 |
| Chromium, Total | 2.5 |
| Copper | 25 |
| Iron | 7.5 |
| Lead | 0.125 |
| Manganese | 2.5 |
| Mercury | 0.05 |
| Molybdenum ^e | 4.375 |
| Nickel | 2.5 |
| PCBs, Total ^b (for landfilled stainless steel slag only) | |
| Selenium | 1 |
| Thallium | (Report only) |
| Zinc | 50 |

^aThe Toxicity Characteristic Leaching Procedure (EPA Method 1311) or the Synthetic Precipitation Leaching Procedure (EPA Method 1312) or other leaching procedure approved by the Department shall be used for all leaching analyses.

^bTotal PCBs must not exceed 2 mg/kg on a weight basis.

4. Prior to the initial beneficial use of residual aggregate, the permittee shall perform chemical analysis on a representative sample of residual aggregate for the appropriate parameters listed in Conditions 2 or 3. The chemical analyses required in this Condition shall be performed by a laboratory that is in compliance with the Pennsylvania Environmental Laboratory Accreditation Act, Act of 2002, No. 90, 27 Pa C.S. §4101 et. seq. The permittee shall perform chemical analysis on additional representative samples of stainless steel slag as follows:
 - a. annually, for stainless steel slag or residual aggregate obtained directly from the generator and produced on an ongoing basis. In addition, each time

GENERAL PERMIT WMGR047
BENEFICIAL USE OF STAINLESS STEEL SLAG

Rev. 4/2011

there is a significant change in the process generating the stainless steel slag or residual aggregate.

- b. each time a new source of stainless steel slag or residual aggregate is received.
- c. quarterly, for stainless steel slag or residual aggregate which has previously been disposed and is being mined. One grab sample of residual aggregate shall be taken each week, of the stainless steel slag that was mined during that week. These weekly grab samples shall be composited to make up the quarterly sample.
- d. Should the level of any constituent equal or exceeding 90 percent of the limit in Conditions 2 or 3, future chemical analyses for the constituent shall be based on monthly samples until such time as levels of the constituent in three consecutive monthly samples are below 90 percent of the limit in Conditions 2 or 3. The monthly samples shall also be made up of composites of the weekly grab samples. Monthly samples are not required in months where no residual aggregate is produced.
- e. Should the level of any constituent exceed the limit in Conditions 2 or 3, a sampling plan for future chemical analyses for the constituent shall be submitted to the Department for approval. Residual aggregate shall not be beneficially used until the sampling plan is approved by the Department and adhered to by the permittee.

Should knowledge of the generation process, visual observations, or analytical results indicate variability in the quality of the residual aggregate, more frequent analysis may be required.

5. Prior to the beneficial use of residual aggregate or distribution of residual aggregate prior to beneficial use, the permittee shall visually inspect the residual aggregate for unusual coloration, stain, or any other indication of contamination or the presence of other wastes or materials. If the presence of other wastes are indicated, as a result of visual observation or testing in compliance with Conditions 2 or 3, the residual aggregate shall not be beneficially used unless the other wastes have been removed from the residual aggregate to the greatest extent practical and the residual aggregate is retested and found to be in compliance with Conditions 2 or 3 or the use of the other waste(s) has been approved by the Department, under a beneficial use general permit, for the same beneficial use(s) as the residual aggregate will be utilized under this permit.
6. The residual aggregate shall not be hazardous waste.
7. The residual aggregate shall not be mixed with other types of solid wastes, including hazardous waste, municipal waste, special handling waste, or other residual waste.
8. The residual aggregate shall not be accumulated speculatively.

GENERAL PERMIT WMGR047
BENEFICIAL USE OF STAINLESS STEEL SLAG Rev. 4/2011

9. The storage and transportation of stainless steel slag or residual aggregate shall be in a manner that does not create a nuisance or be harmful to the public health, safety or the environment. Storage and transportation shall comply with the requirements of 25 Pa. Code Chapter 299 (relating to storage, collection and transportation of residual waste).
10. This permit does not authorize and shall not be construed as an approval to discharge any waste, wastewater, or runoff from the site of processing to the land or waters of the Commonwealth.
11. The permittee shall comply with the fugitive emissions standards adopted under 25 Pa. Code Sections 123.1 and 123.2.
12. In addition to the requirements of this general permit, a noncoal/industrial minerals permit approved by the appropriate District Mining Office is required to reprocess stainless steel slag under this authorization or approval under 25 Pa. Code Chapter 77 prior to excavation of any previously disposed slag.
13. Nothing in this permit shall be construed to supersede, amend, or authorize a violation of any of the provisions of any valid and applicable local law, ordinance, or regulation, provided that said local law, ordinance, or regulation is not preempted by the Pennsylvania Solid Waste Management Act, 35 P.S. §6018.101 et seq., or the Municipal Waste Planning, Recycling and Waste Reduction Act of 1988, 53 P.S. §4000.101 et seq.
14. As a condition of this permit and of the permittee's authority to conduct the activities authorized by this permit, the permittee hereby consents to allow authorized employees or agents of the Department, without advance notice or search warrant, upon presentation of appropriate credentials and without delay, to have access and to inspect all areas or permittee controlled adjacent areas where solid waste management activities are being or will be conducted. This authorization and consent shall include consent to collect samples of waste, water, or gases; to take photographs; to perform measurements, surveys, and other tests; to inspect any monitoring equipment; to inspect the methods of operation; and to inspect and/or copy documents, books, and papers required by the Department to be maintained or produced. (See Sec. 608 and 610(7) of the Solid Waste Management Act, 35 P.S. Section 6018.608 and 6018.610(7).) This condition in no way limits any other powers granted to the Department under the Solid Waste Management Act.
15. Failure of the measures herein approved to perform as intended, or as designed, or in compliance with the applicable laws, rules and regulations and terms and conditions of this permit, for any reason, shall be grounds for the revocation or suspension of the permittee's approval to operate under this permit.
16. The permittee shall comply with the terms and conditions of this general permit and with the environmental protection acts to the same extent as if the activities were covered by an individual permit. The Department may require an individual permit if the permittee is not in compliance with the conditions of this general permit or is conducting an activity that harms or presents a threat of harm to the health, safety, or welfare of the people or the environment.

GENERAL PERMIT WMGR047
BENEFICIAL USE OF STAINLESS STEEL SLAG Rev. 4/2011

17. Any independent contractors or agents retained by the permittee in the completion of activities authorized under this permit shall be subject to prior compliance history review by the Department as specified by the Pennsylvania Solid Waste Management Act of 1980.
18. Any person that operates under the provisions of this permit shall immediately notify the appropriate regional office of the Department via certified mail of any changes in: the company name, address, owners, operators and responsible officials; and the status of any permit issued by the Department or federal government under the environmental protection acts.
19. The permittee shall immediately notify the Department's Emergency Hotline at (717) 787-4343 and the appropriate DEP regional office in the event of a discharge or spill of stainless steel slag or residual aggregate and shall take appropriate immediate action to protect the health and safety of the public and the environment. Spills of less 1000 pounds of stainless steel slag or residual aggregate need not be reported.
20. Records of any analytical evaluations conducted on residual aggregate pursuant to the residual waste regulations and this permit, shall be kept by the permittee at the permittee's place of business and shall be available to the Department for inspection. At a minimum, these records shall include information on the dates of testing, each parameter tested, the results, the laboratory, sampling procedures, analytical methodologies, and person collecting the sample. This waste analysis information shall be retained by the permittee at the permittee's place of business for a minimum of 5 years after the analyses were performed.
21. The permittee shall maintain records that contain: the name, address, and phone number of each source of incoming stainless steel slag or residual aggregate, the date of receipt and quantity of stainless steel slag or residual aggregate received, and the name, address, and phone number, and quantity for each destination of outgoing shipment of residual aggregate. The permittee shall also maintain records of all spills of 1000 pounds or greater and releases that contain: location, date, time, identification and quantity of spilled or released material, and a description of how the material was cleaned up. These records shall be retained by the permittee at the permittee's place of business for a minimum of 5 years from the date the records were generated and shall be available to the Department for inspection.
22. The permittee shall submit an annual report to the Department's office in the region where the permittee is located. This report shall contain a summary of all the information required in Conditions 20 and 21, and shall be submitted by the anniversary date on which the permittee was covered under this permit.

GENERAL PERMIT WMGR047
BENEFICIAL USE OF STAINLESS STEEL SLAG Rev. 4/2011

23. The permittee shall inform all persons or municipalities that propose to beneficially use residual aggregate covered under this permit of all the conditions and limitations imposed on the use of residual aggregate by the Department of Environmental Protection. This notification shall be by providing a copy of the Appendix A (Restrictions on Use of Residual Aggregate as an Agricultural Liming Agent) or Appendix B (Restrictions on Use of Residual Aggregate as an Ingredient in Mine Grouting Material) of this permit to the persons or municipalities. The conditions in the Appendix shall apply to any person who operates pursuant to this general permit, including persons who obtain a Determination of Applicability to conduct activities authorized by this permit. This notification is not required for residual aggregate when sold or otherwise supplied in bags or other containers holding 100 kg of residual aggregate or less.

24. When sold or otherwise supplied for use as an agricultural liming agent in bags or other containers holding 100 kg of residual aggregate or less, each bag or container shall be labeled with the following:
 - a. An indication that the bag or container contains residual aggregate prepared from stainless steel slag.

 - b. A notice that the recommended application rate should not exceed 50 pounds per 1000 square foot (50 lbs/1000 ft²).

 - c. A statement that the residual aggregate is not to be stored or placed in direct contact with groundwater or surface water.

APPENDIX A
GENERAL PERMIT WMGR047
BENEFICIAL USE OF RESIDUAL AGGREGATE
AS AN AGRICULTURAL LIMING AGENT

Rev. 4/2011

The following restrictions apply to residual aggregate when sold or otherwise supplied in bulk quantities for use as an agricultural liming agent. Persons receiving, storing, and/or using the residual aggregate are required to comply with the following requirements:

- A1. Residual aggregate shall not be stored in direct contact with, or applied directly into ground water or surface water.
- A2. Runoff from residual aggregate storage areas shall not cause surface water pollution or groundwater degradation and shall be managed in accordance with The Clean Streams Law and regulations promulgated thereunder.
- A3. The amount of the residual aggregate that may be stored at any site at any point in time is limited to the amount of residual aggregate that is intended to be used, and can be practicably applied, on the site for the next 365 days, but in no case shall more than 2000 tons of the residual aggregate be stored on any one acre of land.
- A4. The storage, transportation and use of the residual aggregate shall be in a manner that will not create a nuisance or be harmful to public health, safety or welfare of the people or environment of this Commonwealth.
- A5. Residual aggregate shall not be applied to the land during periods of rain or to ground that is saturated, covered with snow, or frozen.
- A6. The total lifetime loading rate at any site residual aggregate is used as an agricultural liming agent shall not exceed 83 tons per acre.

APPENDIX B
GENERAL PERMIT WMGR047
BENEFICIAL USE OF RESIDUAL AGGREGATE
AS AN INGRDIENT IN MINE GROUTING MATERIAL

Rev. 4/2011

The following restrictions apply to residual aggregate when sold or otherwise supplied in bulk quantities for use as an ingredient in mine grouting projects. Persons receiving, storing, and/or using the residual aggregate are required to comply with the following requirements:

- B1. Residual aggregate shall not be stored in direct contact with ground water or surface water.
- B2. Prior to use of residual aggregate as an ingredient in mine grouting projects, the user shall submit a notice of intention to the Department for each site at which residual aggregate is intended to be used. For permitted sites or sites covered under a governmental contract, the above notification must also be provided to the appropriate governmental agency.
- B3. Runoff from residual aggregate storage areas shall not cause surface water pollution or groundwater degradation and shall be managed in accordance with The Clean Streams Law and regulations promulgated thereunder.
- B4. Surface water and control erosion and sedimentation shall be managed at mine sites to meet the applicable requirements of 25 Pa. Code Chapter 102 (relating to erosion control).
- B5. The amount of the residual aggregate that may be stored at any site at any point in time is limited to that amount of residual aggregate that is intended to be used, and can be practicably applied, on the site for the next 365 days. No more than 5000 tons of the residual aggregate be stored on any one mine site or 1000 tons at any other site unless otherwise approved by the Department.
- B6. The storage, transportation and use of the residual aggregate shall be in a manner that will not create a nuisance or be harmful to public health, safety or welfare of the people or environment of this Commonwealth.