

US EPA ARCHIVE DOCUMENT

ENERGY RECOVERY - SPENT MATERIAL 1

Description of Activity:

Industrial ethyl alcohol that has been contaminated by oils, perfumes, or other substances added by a variety of manufacturing practices (a spent material exhibiting the characteristic of ignitability) is returned to the ethyl alcohol manufacturer, where it is distilled and regenerated into new industrial ethyl alcohol. The distillation residue (which also exhibits ignitability) is burned as a fuel.

What is the status of the distillation residue?

Questions:

1. Is the material that is recycled a secondary material?
 yes no
If yes, go on to question (2).
If no, the material is not a solid waste.
2. Is the material hazardous? (A material is hazardous if it is listed under 40 CFR 261.30-.33 or exhibits one of the characteristics of a hazardous waste given in 40 CFR 261.20-.24, and is not specifically excluded from the definition of hazardous waste under 40 CFR 261.4(b).)
 yes no
If yes, go on to question (3).
If no, the material is not a solid waste.
3. Is the material specifically excluded from the definition of solid waste under 40 CFR 261.4(a) (see the list in Exhibit 5)?
 yes no
If yes, the material is not a solid waste.
If no, go on to question (4).
4. Is the material inherently waste-like (see the list in Exhibit 4)?
 yes no
If yes, the material is a solid waste. See applicable regulations, below.
If no, go on to question (5).
5. Does the activity serve a beneficial use?
 yes no
If yes, go on to question (6).
If no, the activity is not recycling, and the material is a solid waste. See applicable regulations, below.

6. Is there a feasible means for recycling the waste?
 yes no
If yes, go on to question (6a).
If no, go on to question (6b).
- 6a. Is at least 75 percent of the material recycled within one calendar year?
 yes no
If yes, go on to question (7).
If no, go on to question (6b).
- 6b. Is the material a commercial chemical product that exhibits a hazardous waste characteristic or is listed as a hazardous waste in 40 CFR 261.33?
 yes no
If yes, go on to question (7).
If no, the practice is speculative accumulation, and the material is a solid waste. See applicable regulations, below.
7. Is the material placed on the ground or used in a product that is placed on the ground?
 yes no
If yes, go on to question (7a).
If no, go on to question (8).
- 7a. Is the material a commercial chemical product that exhibits a hazardous waste characteristic or is listed in 40 CFR 261.33 that is produced for application to the land?
 yes no
If yes, the material is not a solid waste.
If no, the activity results in use constituting disposal and the material is a solid waste. See applicable regulations, below.
8. Is the material used as a fuel or used to produce a fuel?
 yes no
If yes, go on to question (8a).
If no, go on to question (9).

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8a. Is the material a commercial chemical product that exhibits a hazardous waste characteristic or is listed in 40 CFR 261.33 and that is produced to be burned as fuel?

yes no

If yes, the material is not a solid waste.
If no, the activity results in burning for energy recovery, and the material is a solid waste. See applicable regulations, below.

9. Is the material used or reused

as an ingredient in an industrial process to make a new product without intermediate reclamation (regeneration or recovery of materials),

as an effective substitute for commercial products in a particular function or application, or

as a substitute for raw material feedstock in the primary production process from which it was generated, without being first reclaimed (a closed-loop process)?

If any of the above apply, the activity is use or reuse, and the material is not a solid waste.
If none of the above apply, go on to question (10).

10. Is the material regenerated or are materials with value recovered from the original material?

yes no

If yes, the activity is reclamation. Go on to question (10a).

If no, please review the definitions of activities in this manual and reconsider your answers, or call the RCRA Hotline for assistance.

10a. Is the material

a hazardous waste listed under 40 CFR 261.31 or 261.32 (this provision excludes commercial chemical products, which are listed under 40 CFR 261.33),

a spent material exhibiting one of the characteristics of a hazardous waste given in 40 CFR 261.20-.24, or

a scrap metal?

If any of the above apply, the material is a solid waste. See applicable regulations, below.

If none of the above apply, go on to question (10b).

10b. Is the material

either a sludge or a by-product that exhibits one of the characteristics of a hazardous waste given in 40 CFR 261.20-.24, and that is not listed under 40 CFR 261.31-.32, or

a commercial chemical product that exhibits a hazardous waste characteristic or is listed under 40 CFR 261.33?

If any of the above apply, the material is not a solid waste.

If none of the above apply, please review the definitions of activities in this manual and reconsider your answers, or call the RCRA Hotline for assistance.

Applicable Regulations

1. Is the waste exempt from regulation (see the list in Exhibit 6)?

yes no

If yes, the material is not regulated.
If no, the material is regulated. See item (2), below.

2. The generator of the spent solvents is subject to requirements under 40 CFR 262. Transporters of the spent solvents are subject to requirements under 40 CFR 263. Generators recycling the spent solvents on-site, off-site recyclers and other parties handling the spent solvents prior to recycling may be subject to storage facility requirements under 40 CFR 264 and 265 Subparts A through L. Generators who store the spent solvents for no more than 90 days in tanks or containers prior to recycling are subject only to the requirements for accumulation under 40 CFR 262.34. Burners of hazardous wastes are only subject to the storage and transportation requirements under 40 CFR 266; the actual burning of these wastes is currently exempt from regulation.

Discussion:

Both listed and characteristic hazardous wastes that are burned as fuels are solid wastes and thus are subject to RCRA Subtitle C regulation.

ENERGY RECOVERY - SPENT MATERIAL 2

Description of Activity:

Hazardous spent solvents from the organic chemicals manufacturing industries (producing basic organic chemicals, organic intermediates, plasticizers, etc.) are burned as fuels in an industrial boiler.

What is the status of the spent solvents?

Questions:

1. Is the material that is recycled a secondary material?
 yes no
If yes, go on to question (2).
If no, the material is not a solid waste.
2. Is the material hazardous? (A material is hazardous if it is listed under 40 CFR 261.30-.33 or exhibits one of the characteristics of a hazardous waste given in 40 CFR 261.20-.24, and is not specifically excluded from the definition of hazardous waste under 40 CFR 261.4(b).)
 yes no
If yes, go on to question (3).
If no, the material is not a solid waste.
3. Is the material specifically excluded from the definition of solid waste under 40 CFR 261.4(a) (see the list in Exhibit 5)?
 yes no
If yes, the material is not a solid waste.
If no, go on to question (4).
4. Is the material inherently waste-like (see the list in Exhibit 4)?
 yes no
If yes, the material is a solid waste. See applicable regulations, below.
If no, go on to question (5).
5. Does the activity serve a beneficial use?
 yes no
If yes, go on to question (6).
If no, the activity is not recycling, and the material is a solid waste. See applicable regulations, below.

6. Is there a feasible means for recycling the waste?
 yes no
If yes, go on to question (6a).
If no, go on to question (6b).
- 6a. Is at least 75 percent of the material recycled within one calendar year?
 yes no
If yes, go on to question (7).
If no, go on to question (6b).
- 6b. Is the material a commercial chemical product that exhibits a hazardous waste characteristic or is listed as a hazardous waste in 40 CFR 261.33?
 yes no
If yes, go on to question (7).
If no, the practice is speculative accumulation, and the material is a solid waste. See applicable regulations, below.
7. Is the material placed on the ground or used in a product that is placed on the ground?
 yes no
If yes, go on to question (7a).
If no, go on to question (8).
- 7a. Is the material a commercial chemical product that exhibits a hazardous waste characteristic or is listed in 40 CFR 261.33 that is produced for application to the land?
 yes no
If yes, the material is not a solid waste.
If no, the activity results in use constituting disposal and the material is a solid waste. See applicable regulations, below.
8. Is the material used as a fuel or used to produce a fuel?
 yes no
If yes, go on to question (8a).
If no, go on to question (9).

8a. Is the material a commercial chemical product that exhibits a hazardous waste characteristic or is listed in 40 CFR 261.33 and that is produced to be burned as fuel?

yes no

If yes, the material is not a solid waste.
If no, the activity results in burning for energy recovery, and the material is a solid waste. See applicable regulations, below.

9. Is the material used or reused

as an ingredient in an industrial process to make a new product without intermediate reclamation (regeneration or recovery of materials),

as an effective substitute for commercial products in a particular function or application, or

as a substitute for raw material feedstock in the primary production process from which it was generated, without being first reclaimed (a closed-loop process)?

If any of the above apply, the activity is use or reuse, and the material is not a solid waste.
If none of the above apply, go on to question (10).

10. Is the material regenerated or are materials with value recovered from the original material?

yes no

If yes, the activity is reclamation. Go on to question (10a).

If no, please review the definitions of activities in this manual and reconsider your answers, or call the RCRA Hotline for assistance.

10a. Is the material

a hazardous waste listed under 40 CFR 261.31 or 261.32 (this provision excludes commercial chemical products, which are listed under 40 CFR 261.33),

a spent material exhibiting one of the characteristics of a hazardous waste given in 40 CFR 261.20-.24, or

a scrap metal?

If any of the above apply, the material is a solid waste. See applicable regulations, below.

If none of the above apply, go on to question (10b).

10b. Is the material

either a sludge or a by-product that exhibits one of the characteristics of a hazardous waste given in 40 CFR 261.20-.24, and that is not listed under 40 CFR 261.31-.32, or

a commercial chemical product that exhibits a hazardous waste characteristic or is listed under 40 CFR 261.33?

If any of the above apply, the material is not a solid waste.

If none of the above apply, please review the definitions of activities in this manual and reconsider your answers, or call the RCRA Hotline for assistance.

Applicable Regulations:

1. Is the waste exempt from regulation (see the list in Exhibit 6)?

yes no

If yes, the material is not regulated.
If no, the material is regulated. See item (2), below.

2. The generator of the spent solvents is subject to requirements under 40 CFR 262. Transporters of the spent solvents are subject to requirements under 40 CFR 263. Generators recycling the spent solvents on-site, off-site recyclers and other parties handling the spent solvents prior to recycling may be subject to storage facility requirements under 40 CFR 264 and 265 Subparts A through L. Generators who store the solvents for no more than 90 days in tanks or containers prior to recycling are subject only to the requirements for accumulation under 40 CFR 262.34. The process of mixing the spent solvents to produce the fuel is exempt from regulation.

Discussion:

Characteristic spent materials that are burned as fuels or used to produce a fuel are solid wastes and are subject to RCRA Subtitle C regulation.

See Also:

Energy Recovery - By-Product 3
Energy Recovery - Mixed Material 1

ENERGY RECOVERY - SPENT MATERIAL 3

Description of Activity:

Non-halogenated spent solvents (heavy alcohols, ketones and hydrocarbons, spent materials exhibiting the characteristic of ignitability) and heavy residuals (by-products exhibiting the characteristic of EP-toxicity) from a chemical manufacturing plant are physically mixed into a product that is sold as marine fuel. The fuel exhibits the characteristic of ignitability.

What is the status of the spent solvents?

Questions:

1. Is the material that is recycled a secondary material?

yes no

If yes, go on to question (2).
If no, the material is not a solid waste.

2. Is the material hazardous? (A material is hazardous if it is listed under 40 CFR 261.30-.33 or exhibits one of the characteristics of a hazardous waste given in 40 CFR 261.20-.24, and is not specifically excluded from the definition of hazardous waste under 40 CFR 261.4(b).)

yes no

If yes, go on to question (3).
If no, the material is not a solid waste.

3. Is the material specifically excluded from the definition of solid waste under 40 CFR 261.4(a) (see the list in Exhibit 5)?

yes no

If yes, the material is not a solid waste.
If no, go on to question (4).

4. Is the material inherently waste-like (see the list in Exhibit 4)?

yes no

If yes, the material is a solid waste. See applicable regulations, below.
If no, go on to question (5).

5. Does the activity serve a beneficial use?

yes no

If yes, go on to question (6).
If no, the activity is not recycling, and the material is a solid waste. See applicable regulations, below.

6. Is there a feasible means for recycling the waste?

yes no

If yes, go on to question (6a).
If no, go on to question (6b).

- 6a. Is at least 75 percent of the material recycled within one calendar year?

yes no

If yes, go on to question (7).
If no, go on to question (6b).

- 6b. Is the material a commercial chemical product that exhibits a hazardous waste characteristic or is listed as a hazardous waste in 40 CFR 261.33?

yes no

If yes, go on to question (7).
If no, the practice is speculative accumulation, and the material is a solid waste. See applicable regulations, below.

7. Is the material placed on the ground or used in a product that is placed on the ground?

yes no

If yes, go on to question (7a).
If no, go on to question (8).

- 7a. Is the material a commercial chemical product that exhibits a hazardous waste characteristic or is listed in 40 CFR 261.33 that is produced for application to the land?

yes no

If yes, the material is not a solid waste.
If no, the activity results in use constituting disposal and the material is a solid waste. See applicable regulations, below.

8. Is the material used as a fuel or used to produce a fuel?

yes no

If yes, go on to question (8a).
If no, go on to question (9).

8a. Is the material a commercial chemical product that exhibits a hazardous waste characteristic or is listed in 40 CFR 261.33 and that is produced to be burned as fuel?

yes no

If yes, the material is not a solid waste.
If no, the activity results in burning for energy recovery, and the material is a solid waste. See applicable regulations, below.

9. Is the material used or reused

as an ingredient in an industrial process to make a new product without intermediate reclamation (regeneration or recovery of materials),

as an effective substitute for commercial products in a particular function or application, or

as a substitute for raw material feedstock in the primary production process from which it was generated, without being first reclaimed (a closed-loop process)?

If any of the above apply, the activity is use or reuse, and the material is not a solid waste.
If none of the above apply, go on to question (10).

10. Is the material regenerated or are materials with value recovered from the original material?

yes no

If yes, the activity is reclamation. Go on to question (10a).
If no, please review the definitions of activities in this manual and reconsider your answers, or call the RCRA Hotline for assistance.

10a. Is the material

a hazardous waste listed under 40 CFR 261.31 or 261.32 (this provision excludes commercial chemical products, which are listed under 40 CFR 261.33),

a spent material exhibiting one of the characteristics of a hazardous waste given in 40 CFR 261.20-.24, or

a scrap metal?

If any of the above apply, the material is a solid waste. See applicable regulations, below.

If none of the above apply, go on to question (10b).

10b. Is the material

either a sludge or a by-product that exhibits one of the characteristics of a hazardous waste given in 40 CFR 261.20-.24, and that is not listed under 40 CFR 261.31-.32, or

a commercial chemical product that exhibits a hazardous waste characteristic or is listed under 40 CFR 261.33?

If any of the above apply, the material is not a solid waste.

If none of the above apply, please review the definitions of activities in this manual and reconsider your answers, or call the RCRA Hotline for assistance.

Applicable Regulations

1. Is the waste exempt from regulation (see the list in Exhibit 6)?

yes no

If yes, the material is not regulated.
If no, the material is regulated. See item (2), below.

2. The generator of the decanter tank tar sludge is subject to requirements under 40 CFR 262. Transporters of the decanter sludge are subject to requirements under 40 CFR 263. Generators recycling the decanter sludge on-site, off-site recyclers and other parties handling the decanter sludge prior to recycling may be subject to storage facility requirements under 40 CFR 264 and 265 Subparts A through L. Generators who store the decanter sludge for no more than 90 days in tanks or containers prior to recycling are subject only to the requirements for accumulation under 40 CFR 262.34. Any residues from recycling the sludge must be managed as hazardous wastes.

Discussion:

The decanter tank tar sludge is directly reused as a feedstock in the coking process, but the coke that is produced is burned as a fuel. Although coke is used as both a fuel and a feedstock in blast furnaces, the energy recovery function takes precedence. Because the ultimate activity is burning for energy recovery, the decanter tank tar sludges are solid wastes, and are subject to RCRA Subtitle C regulation.

See Also: Energy Recovery - By-Product 2

ENERGY RECOVERY - BY-PRODUCT 1

Description of Activity:

Decanter tank tar sludge from coking processes (a by-product listed under EPA Hazardous Waste No. K087) is substituted for a raw material -- coal -- in coke ovens, where it is converted into coke. The coke then is used in blast furnaces as a fuel and as an ingredient (providing carbon) in the production of steel.

What is the status of the decanter tank tar sludge?

Questions:

1. Is the material that is recycled a secondary material?
 yes no
If yes, go on to question (2).
If no, the material is not a solid waste.
2. Is the material hazardous? (A material is hazardous if it is listed under 40 CFR 261.30-.33 or exhibits one of the characteristics of a hazardous waste given in 40 CFR 261.20-.24, and is not specifically excluded from the definition of hazardous waste under 40 CFR 261.4(b).)
 yes no
If yes, go on to question (3).
If no, the material is not a solid waste.
3. Is the material specifically excluded from the definition of solid waste under 40 CFR 261.4(a) (see the list in Exhibit 5)?
 yes no
If yes, the material is not a solid waste.
If no, go on to question (4).
4. Is the material inherently waste-like (see the list in Exhibit 4)?
 yes no
If yes, the material is a solid waste. See applicable regulations, below.
If no, go on to question (5).
5. Does the activity serve a beneficial use?
 yes no
If yes, go on to question (6).
If no, the activity is not recycling, and the material is a solid waste. See applicable regulations, below.

6. Is there a feasible means for recycling the waste?
 yes no
If yes, go on to question (6a).
If no, go on to question (6b).
- 6a. Is at least 75 percent of the material recycled within one calendar year?
 yes no
If yes, go on to question (7).
If no, go on to question (6b).
- 6b. Is the material a commercial chemical product that exhibits a hazardous waste characteristic or is listed as a hazardous waste in 40 CFR 261.33?
 yes no
If yes, go on to question (7).
If no, the practice is speculative accumulation, and the material is a solid waste. See applicable regulations, below.
7. Is the material placed on the ground or used in a product that is placed on the ground?
 yes no
If yes, go on to question (7a).
If no, go on to question (8).
- 7a. Is the material a commercial chemical product that exhibits a hazardous waste characteristic or is listed in 40 CFR 261.33 that is produced for application to the land?
 yes no
If yes, the material is not a solid waste.
If no, the activity results in use constituting disposal and the material is a solid waste. See applicable regulations, below.
8. Is the material used as a fuel or used to produce a fuel?
 yes no
If yes, go on to question (8a).
If no, go on to question (9).

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8a. Is the material a commercial chemical product that exhibits a hazardous waste characteristic or is listed in 40 CFR 261.33 and that is produced to be burned as fuel?

yes no

If yes, the material is not a solid waste.
If no, the activity results in burning for energy recovery, and the material is a solid waste. See applicable regulations, below.

9. Is the material used or reused

as an ingredient in an industrial process to make a new product without intermediate reclamation (regeneration or recovery of materials),

as an effective substitute for commercial products in a particular function or application, or

as a substitute for raw material feedstock in the primary production process from which it was generated, without being first reclaimed (a closed-loop process)?

If any of the above apply, the activity is use or reuse, and the material is not a solid waste.
If none of the above apply, go on to question (10).

10. Is the material regenerated or are materials with value recovered from the original material?

yes no

If yes, the activity is reclamation. Go on to question (10a).

If no, please review the definitions of activities in this manual and reconsider your answers, or call the RCRA Hotline for assistance.

10a. Is the material

a hazardous waste listed under 40 CFR 261.31 or 261.32 (excluding commercial chemicals),

a spent material exhibiting one of the characteristics of a hazardous waste given in 40 CFR 261.20-.24, or

a scrap metal?

If any of the above apply, the material is a solid waste. See applicable regulations, below.

If none of the above apply, go on to question (10b).

10b. Is the material

either a sludge or a by-product that exhibits one of the characteristics of a hazardous waste given in 40 CFR 261.20-.24, and that is not listed under 40 CFR 261.31-.32, or

a commercial chemical product that exhibits a hazardous waste characteristic or is listed under 40 CFR 261.33?

If any of the above apply, the material is not a solid waste.

If none of the above apply, please review the definitions of activities in this manual and reconsider your answers, or call the RCRA Hotline for assistance.

Applicable Regulations

1. Is the waste exempt from regulation (see the list in Exhibit 6)?

yes no

If yes, the material is not regulated.
If no, the material is regulated. See item (2), below.

Discussion:

The coke is derived from a listed by-product and is an intermediate material in a recycling process that ends with burning for energy recovery (although coke is used as both a fuel and a feedstock in blast furnaces, the energy recovery function takes precedence). Therefore, the coke is a solid waste. However, waste-derived coke from the iron and steel industry that contains hazardous waste from the iron and steel production process currently is exempt from RCRA Subtitle C regulation (see 40 CFR 261.6(a)(3)(vii)).

See also: Energy Recovery - By Product 1

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ENERGY RECOVERY - BY-PRODUCT 2

Description of Activity:

Decanter tank tar sludge from coking processes (a by-product listed under EPA Hazardous Waste No. K087) is substituted for a raw material -- coal -- in coke ovens, where it is converted into coke. The coke then is used in blast furnaces as a fuel and as an ingredient (providing carbon) in the production of steel.

What is the status of the coke?

Questions:

1. Is the material that is recycled a secondary material?
 yes no
If yes, go on to question (2).
If no, the material is not a solid waste.
2. Is the material hazardous? (A material is hazardous if it is listed under 40 CFR 261.30-.33 or exhibits one of the characteristics of a hazardous waste given in 40 CFR 261.20-.24, and is not specifically excluded from the definition of hazardous waste under 40 CFR 261.4(b).)
 yes no
If yes, go on to question (3).
If no, the material is not a solid waste.
3. Is the material specifically excluded from the definition of solid waste under 40 CFR 261.4(a) (see the list in Exhibit 5)?
 yes no
If yes, the material is not a solid waste.
If no, go on to question (4).
4. Is the material inherently waste-like (see the list in Exhibit 4)?
 yes no
If yes, the material is a solid waste. See applicable regulations, below.
If no, go on to question (5).
5. Does the activity serve a beneficial use?
 yes no
If yes, go on to question (6).
If no, the activity is not recycling, and the material is a solid waste. See applicable regulations, below.

6. Is there a feasible means for recycling the waste?
 yes no
If yes, go on to question (6a).
If no, go on to question (6b).
- 6a. Is at least 75 percent of the material recycled within one calendar year?
 yes no
If yes, go on to question (7).
If no, go on to question (6b).
- 6b. Is the material a commercial chemical product that exhibits a hazardous waste characteristic or is listed as a hazardous waste in 40 CFR 261.33?
 yes no
If yes, go on to question (7).
If no, the practice is speculative accumulation, and the material is a solid waste. See applicable regulations, below.
7. Is the material placed on the ground or used in a product that is placed on the ground?
 yes no
If yes, go on to question (7a).
If no, go on to question (8).
- 7a. Is the material a commercial chemical product that exhibits a hazardous waste characteristic or is listed in 40 CFR 261.33 that is produced for application to the land?
 yes no
If yes, the material is not a solid waste.
If no, the activity results in use constituting disposal and the material is a solid waste. See applicable regulations, below.
8. Is the material used as a fuel or used to produce a fuel?
 yes no
If yes, go on to question (8a).
If no, go on to question (9).

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8a. Is the material a commercial chemical product that exhibits a hazardous waste characteristic or is listed in 40 CFR 261.33 and that is produced to be burned as fuel?

yes no

If yes, the material is not a solid waste.
If no, the activity results in burning for energy recovery, and the material is a solid waste. See applicable regulations, below.

9. Is the material used or reused

as an ingredient in an industrial process to make a new product without intermediate reclamation (regeneration or recovery of materials),

as an effective substitute for commercial products in a particular function or application, or

as a substitute for raw material feedstock in the primary production process from which it was generated, without being first reclaimed (a closed-loop process)?

If any of the above apply, the activity is use or reuse, and the material is not a solid waste.
If none of the above apply, go on to question (10).

10. Is the material regenerated or are materials with value recovered from the original material?

yes no

If yes, the activity is reclamation. Go on to question (10a).

If no, please review the definitions of activities in this manual and reconsider your answers, or call the RCRA Hotline for assistance.

10a. Is the material

a hazardous waste listed under 40 CFR 261.31 or 261.32 (this provision excludes commercial chemical products, which are listed under 40 CFR 261.33),

a spent material exhibiting one of the characteristics of a hazardous waste given in 40 CFR 261.20-.24, or

a scrap metal?

If any of the above apply, the material is a solid waste. See applicable regulations, below.

If none of the above apply, go on to question (10b).

10b. Is the material

either a sludge or a by-product that exhibits one of the characteristics of a hazardous waste given in 40 CFR 261.20-.24, and that is not listed under 40 CFR 261.31-.32, or

a commercial chemical product that exhibits a hazardous waste characteristic or is listed under 40 CFR 261.33?

If any of the above apply, the material is not a solid waste.

If none of the above apply, please review the definitions of activities in this manual and reconsider your answers, or call the RCRA Hotline for assistance.

Applicable Regulations:

1. Is the waste exempt from regulation (see the list in Exhibit 6)?

yes no

If yes, the material is not regulated.

If no, the material is regulated. See item (2), below.

2. The generator of the heavy residuals is subject to requirements under 40 CFR 262. Transporters of the residuals are subject to requirements under 40 CFR 263. Generators recycling the residuals on-site, off-site recyclers and other parties handling the residuals prior to recycling may be subject to storage facility requirements under 40 CFR 264 and 265 Subparts A through L. Generators who store the residuals for no more than 90 days in tanks or containers prior to recycling are subject only to the requirements for accumulation under 40 CFR 262.34. The process of mixing the heavy residuals to produce the fuel is exempt from regulation.

Discussion:

Characteristic by-products that are burned as fuels or used to produce a fuel are solid wastes and are subject to RCRA Subtitle C regulation.

See Also:

Energy Recovery - Spent Material 3
Energy Recovery - Mixed Material 1

ENERGY RECOVERY - BY-PRODUCT 3

Description of Activity:

Non-halogenated spent solvents (heavy alcohols, ketones and hydrocarbons, spent materials exhibiting the characteristic of ignitability) and heavy residuals (by-products exhibiting the characteristic of EP-toxicity) from a chemical manufacturing plant are physically mixed into a product that is sold as marine fuel. The fuel exhibits the characteristic of ignitability.

What is the status of the heavy residuals?

Questions:

1. Is the material that is recycled a secondary material?
 yes no
If yes, go on to question (2).
If no, the material is not a solid waste.
2. Is the material hazardous? (A material is hazardous if it is listed under 40 CFR 261.30-.33 or exhibits one of the characteristics of a hazardous waste given in 40 CFR 261.20-.24, and is not specifically excluded from the definition of hazardous waste under 40 CFR 261.4(b).)
 yes no
If yes, go on to question (3).
If no, the material is not a solid waste.
3. Is the material specifically excluded from the definition of solid waste under 40 CFR 261.4(a) (see the list in Exhibit 5)?
 yes no
If yes, the material is not a solid waste.
If no, go on to question (4).
4. Is the material inherently waste-like (see the list in Exhibit 4)?
 yes no
If yes, the material is a solid waste. See applicable regulations, below.
If no, go on to question (5).
5. Does the activity serve a beneficial use?
 yes no
If yes, go on to question (6).
If no, the activity is not recycling, and the material is a solid waste. See applicable regulations, below.

6. Is there a feasible means for recycling the waste?
 yes no
If yes, go on to question (6a).
If no, go on to question (6b).
- 6a. Is at least 75 percent of the material recycled within one calendar year?
 yes no
If yes, go on to question (7).
If no, go on to question (6b).
- 6b. Is the material a commercial chemical product that exhibits a hazardous waste characteristic or is listed as a hazardous waste in 40 CFR 261.33?
 yes no
If yes, go on to question (7).
If no, the practice is speculative accumulation, and the material is a solid waste. See applicable regulations, below.
7. Is the material placed on the ground or used in a product that is placed on the ground?
 yes no
If yes, go on to question (7a).
If no, go on to question (8).
- 7a. Is the material a commercial chemical product that exhibits a hazardous waste characteristic or is listed in 40 CFR 261.33 that is produced for application to the land?
 yes no
If yes, the material is not a solid waste.
If no, the activity results in use constituting disposal and the material is a solid waste. See applicable regulations, below.
8. Is the material used as a fuel or used to produce a fuel?
 yes no
If yes, go on to question (8a).
If no, go on to question (9).

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8a. Is the material a commercial chemical product that exhibits a hazardous waste characteristic or is listed in 40 CFR 261.33 and that is produced to be burned as fuel?

yes no

If yes, the material is not a solid waste.
If no, the activity results in burning for energy recovery, and the material is a solid waste. See applicable regulations, below.

9. Is the material used or reused

- as an ingredient in an industrial process to make a new product without intermediate reclamation (regeneration or recovery of materials),
- as an effective substitute for commercial products in a particular function or application, or
- as a substitute for raw material feedstock in the primary production process from which it was generated, without being first reclaimed (a closed-loop process)?

If any of the above apply, the activity is use or reuse, and the material is not a solid waste.
If none of the above apply, go on to question (10).

10. Is the material regenerated or are materials with value recovered from the original material?

yes no

If yes, the activity is reclamation. Go on to question (10a).
If no, please review the definitions of activities in this manual and reconsider your answers, or call the RCRA Hotline for assistance.

10a. Is the material

- a hazardous waste listed under 40 CFR 261.31 or 261.32 (this provision excludes commercial chemical products, which are listed under 40 CFR 261.33),
- a spent material exhibiting one of the characteristics of a hazardous waste given in 40 CFR 261.20-.24, or
- a scrap metal?

If any of the above apply, the material is a solid waste. See applicable regulations, below.

If none of the above apply, go on to question (10b).

10b. Is the material

either a sludge or a by-product that exhibits one of the characteristics of a hazardous waste given in 40 CFR 261.20-.24, and that is not listed under 40 CFR 261.31-.32, or

a commercial chemical product that exhibits a hazardous waste characteristic or is listed under 40 CFR 261.33?

If any of the above apply, the material is not a solid waste.

If none of the above apply, please review the definitions of activities in this manual and reconsider your answers, or call the RCRA Hotline for assistance.

Applicable Regulations

1. Is the waste exempt from regulation (see the list in Exhibit 6)?

yes no

If yes, the material is not regulated.
If no, the material is regulated. See item (2), below.

2. The generator of the decanter tank tar sludge is subject to requirements under 40 CFR 262. Transporters of the decanter sludge are subject to requirements under 40 CFR 263. Generators recycling the decanter sludge on-site, off-site recyclers and other parties handling the decanter sludge prior to recycling may be subject to storage facility requirements under 40 CFR 264 and 265 Subparts A through L. Generators who store the decanter sludge for no more than 90 days in tanks or containers prior to recycling are subject only to the requirements for accumulation under 40 CFR 262.34. Burners of the decanter sludge are only subject to storage and transportation requirements under 40 CFR 266; the actual burning of these wastes is currently exempt from regulation.

Discussion:

Listed by-products that are burned for energy recovery are solid wastes and are subject to RCRA Subtitle C regulation.

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ENERGY RECOVERY - BY-PRODUCT 4

Description of Activity:

Decanter tank tar sludge from coking operations (a by-product listed under EPA Hazardous Waste No. K087) is burned as a fuel.

What is the status of the decanter tank tar sludge?

Questions:

1. Is the material that is recycled a secondary material?
 yes no
If yes, go on to question (2).
If no, the material is not a solid waste.
2. Is the material hazardous? (A material is hazardous if it is listed under 40 CFR 261.30-.33 or exhibits one of the characteristics of a hazardous waste given in 40 CFR 261.20-.24, and is not specifically excluded from the definition of hazardous waste under 40 CFR 261.4(b).)
 yes no
If yes, go on to question (3).
If no, the material is not a solid waste.
3. Is the material specifically excluded from the definition of solid waste under 40 CFR 261.4(a) (see the list in Exhibit 5)?
 yes no
If yes, the material is not a solid waste.
If no, go on to question (4).
4. Is the material inherently waste-like (see the list in Exhibit 4)?
 yes no
If yes, the material is a solid waste. See applicable regulations, below.
If no, go on to question (5).
5. Does the activity serve a beneficial use?
 yes no
If yes, go on to question (6).
If no, the activity is not recycling, and the material is a solid waste. See applicable regulations, below.

6. Is there a feasible means for recycling the waste?
 yes no
If yes, go on to question (6a).
If no, go on to question (6b).
- 6a. Is at least 75 percent of the material recycled within one calendar year?
 yes no
If yes, go on to question (7).
If no, go on to question (6b).
- 6b. Is the material a commercial chemical product that exhibits a hazardous waste characteristic or is listed as a hazardous waste in 40 CFR 261.33?
 yes no
If yes, go on to question (7).
If no, the practice is speculative accumulation, and the material is a solid waste. See applicable regulations, below.
7. Is the material placed on the ground or used in a product that is placed on the ground?
 yes no
If yes, go on to question (7a).
If no, go on to question (8).
- 7a. Is the material a commercial chemical product that exhibits a hazardous waste characteristic or is listed in 40 CFR 261.33 that is produced for application to the land?
 yes no
If yes, the material is not a solid waste.
If no, the activity results in use constituting disposal and the material is a solid waste. See applicable regulations, below.
8. Is the material used as a fuel or used to produce a fuel?
 yes no
If yes, go on to question (8a).
If no, go on to question (9).

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8a. Is the material a commercial chemical product that exhibits a hazardous waste characteristic or is listed in 40 CFR 261.33 and that is produced to be burned as fuel?

yes no

If yes, the material is not a solid waste. If no, the activity results in burning for energy recovery, and the material is a solid waste. See applicable regulations, below.

9. Is the material used or reused

- as an ingredient in an industrial process to make a new product without intermediate reclamation (regeneration or recovery of materials),
- as an effective substitute for commercial products in a particular function or application, or
- as a substitute for raw material feedstock in the primary production process from which it was generated, without being first reclaimed (a closed-loop process)?

If any of the above apply, the activity is use or reuse, and the material is not a solid waste. If none of the above apply, go on to question (10).

10. Is the material regenerated or are materials with value recovered from the original material?

yes no

If yes, the activity is reclamation. Go on to question (10a). If no, please review the definitions of activities in this manual and reconsider your answers, or call the RCRA Hotline for assistance.

10a. Is the material

- a hazardous waste listed under 40 CFR 261.31 or 261.32 (this provision excludes commercial chemical products, which are listed under 40 CFR 261.33),
- a spent material exhibiting one of the characteristics of a hazardous waste given in 40 CFR 261.20-.24, or
- a scrap metal?

If any of the above apply, the material is a solid waste. See applicable regulations, below.

If none of the above apply, go on to question (10b).

10b. Is the material

either a sludge or a by-product that exhibits one of the characteristics of a hazardous waste given in 40 CFR 261.20-.24, and that is not listed under 40 CFR 261.31-.32, or

a commercial chemical product that exhibits a hazardous waste characteristic or is listed under 40 CFR 261.33?

If any of the above apply, the material is not a solid waste.

If none of the above apply, please review the definitions of activities in this manual and reconsider your answers, or call the RCRA Hotline for assistance.

Applicable Regulations:

1. Is the waste exempt from regulation (see the list in Exhibit 6)?

yes no

If yes, the material is not regulated. If no, the material is regulated. See item (2), below.

2. The generator of the fuel (the person who mixes the solvents and residuals) is subject to requirements under 40 CFR 262. Transporters of the fuel are subject to requirements under 40 CFR 263. Generators recycling the fuel on-site, off-site recyclers and other parties handling the fuel prior to recycling may be subject to storage facility requirements under 40 CFR 264 and 265 Subparts A through L. Generators who store the fuel for no more than 90 days in tanks or containers prior to recycling are subject only to the requirements for accumulation under 40 CFR 262.34. The actual burning of these fuels is currently exempt from regulation.

Discussion:

The fuel is the product of the mixing of characteristic hazardous wastes and itself exhibits a hazardous waste characteristic. Therefore, the fuel is a solid and hazardous waste and is subject to RCRA Subtitle C transportation and storage regulation.

See Also: Energy Recovery - Spent Material 3
Energy Recovery - By-Product 3

ENERGY RECOVERY - MIXED MATERIAL 1

Description of Activity:

Non-halogenated spent solvents (heavy alcohols, ketones and hydrocarbons, spent materials exhibiting the characteristic of ignitability) and heavy residuals (by-products exhibiting the characteristic of EP-toxicity) from a chemical manufacturing plant are physically mixed into a product that is sold as marine fuel. The fuel exhibits the characteristic of ignitability.

What is the status of the marine fuel?

Questions:

1. Is the material that is recycled a secondary material?

yes no

If yes, go on to question (2).
If no, the material is not a solid waste.

2. Is the material hazardous? (A material is hazardous if it is listed under 40 CFR 261.30-.33 or exhibits one of the characteristics of a hazardous waste given in 40 CFR 261.20-.24, and is not specifically excluded from the definition of hazardous waste under 40 CFR 261.4(b).)

yes no

If yes, go on to question (3).
If no, the material is not a solid waste.

3. Is the material specifically excluded from the definition of solid waste under 40 CFR 261.4(a) (see the list in Exhibit 5)?

yes no

If yes, the material is not a solid waste.
If no, go on to question (4).

4. Is the material inherently waste-like (see the list in Exhibit 4)?

yes no

If yes, the material is a solid waste. See applicable regulations, below.
If no, go on to question (5).

5. Does the activity serve a beneficial use?

yes no

If yes, go on to question (6).
If no, the activity is not recycling, and the material is a solid waste. See applicable regulations, below.

6. Is there a feasible means for recycling the waste?

yes no

If yes, go on to question (6a).
If no, go on to question (6b).

- 6a. Is at least 75 percent of the material recycled within one calendar year?

yes no

If yes, go on to question (7).
If no, go on to question (6b).

- 6b. Is the material a commercial chemical product that exhibits a hazardous waste characteristic or is listed as a hazardous waste in 40 CFR 261.33?

yes no

If yes, go on to question (7).
If no, the practice is speculative accumulation, and the material is a solid waste. See applicable regulations, below.

7. Is the material placed on the ground or used in a product that is placed on the ground?

yes no

If yes, go on to question (7a).
If no, go on to question (8).

- 7a. Is the material a commercial chemical product that exhibits a hazardous waste characteristic or is listed in 40 CFR 261.33 that is produced for application to the land?

yes no

If yes, the material is not a solid waste.
If no, the activity results in use constituting disposal and the material is a solid waste. See applicable regulations, below.

8. Is the material used as a fuel or used to produce a fuel?

yes no

If yes, go on to question (8a).
If no, go on to question (9).

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8a. Is the material a commercial chemical product that exhibits a hazardous waste characteristic or is listed in 40 CFR 261.33 and that is produced to be burned as fuel?

yes no

If yes, the material is not a solid waste.
If no, the activity results in burning for energy recovery, and the material is a solid waste. See applicable regulations, below.

9. Is the material used or reused

as an ingredient in an industrial process to make a new product without intermediate reclamation (regeneration or recovery of materials),

as an effective substitute for commercial products in a particular function or application, or

as a substitute for raw material feedstock in the primary production process from which it was generated, without being first reclaimed (a closed-loop process)?

If any of the above apply, the activity is use or reuse, and the material is not a solid waste.
If none of the above apply, go on to question (10).

10. Is the material regenerated or are materials with value recovered from the original material?

yes no

If yes, the activity is reclamation. Go on to question (10a).

If no, please review the definitions of activities in this manual and reconsider your answers, or call the RCRA Hotline for assistance.

10a. Is the material

a hazardous waste listed under 40 CFR 261.31 or 261.32 (this provision excludes commercial chemical products, which are listed under CFR 261.33),

a spent material exhibiting one of the characteristics of a hazardous waste given in 40 CFR 261.20-.24, or

a scrap metal?

If any of the above apply, the material is a solid waste. See applicable regulations, below.

If none of the above apply, go on to question (10b).

10b. Is the material

either a sludge or a by-product that exhibits one of the characteristics of a hazardous waste given in 40 CFR 261.20-.24, and that is not listed under 40 CFR 261.31-.32, or

a commercial chemical product that exhibits a hazardous waste characteristic or is listed under 40 CFR 261.33?

If any of the above apply, the material is not a solid waste.

If none of the above apply, please review the definitions of activities in this manual and reconsider your answers, or call the RCRA Hotline for assistance.

Applicable Regulations

1. Is the waste exempt from regulation (see the list in Exhibit 6)?

yes no

If yes, the material is not regulated.

If no, the material is regulated. See item (2), below.

Discussion:

Pipeline condensate is off-specification fuel. Off-specification fuels that are burned for energy recovery are not solid wastes, and are not subject to RCRA Subtitle C regulation.

ENERGY RECOVERY - NON-SECONDARY MATERIAL 1

Description of Activity:

Pipeline condensate from natural gas transmission accumulates in the pipeline as it is generated. When pipelines are cleaned, the condensate (which exhibits the characteristic of ignitability) is stored in above-ground steel tanks until it is sold to firms using it as a fuel.

What is the status of the pipeline condensate?

Questions:

1. Is the material that is recycled a secondary material?
 yes no
If yes, go on to question (2).
If no, the material is not a solid waste.
2. Is the material hazardous? (A material is hazardous if it is listed under 40 CFR 261.30-.33 or exhibits one of the characteristics of a hazardous waste given in 40 CFR 261.20-.24, and is not specifically excluded from the definition of hazardous waste under 40 CFR 261.4(b).)
 yes no
If yes, go on to question (3).
If no, the material is not a solid waste.
3. Is the material specifically excluded from the definition of solid waste under 40 CFR 261.4(a) (see the list in Exhibit 5)?
 yes no
If yes, the material is not a solid waste.
If no, go on to question (4).
4. Is the material inherently waste-like (see the list in Exhibit 4)?
 yes no
If yes, the material is a solid waste. See applicable regulations, below.
If no, go on to question (5).
5. Does the activity serve a beneficial use?
 yes no
If yes, go on to question (6).
If no, the activity is not recycling, and the material is a solid waste. See applicable regulations, below.

6. Is there a feasible means for recycling the waste?
 yes no
If yes, go on to question (6a).
If no, go on to question (6b).
- 6a. Is at least 75 percent of the material recycled within one calendar year?
 yes no
If yes, go on to question (7).
If no, go on to question (6b).
- 6b. Is the material a commercial chemical product that exhibits a hazardous waste characteristic or is listed as a hazardous waste in 40 CFR 261.33?
 yes no
If yes, go on to question (7).
If no, the practice is speculative accumulation, and the material is a solid waste. See applicable regulations, below.
7. Is the material placed on the ground or used in a product that is placed on the ground?
 yes no
If yes, go on to question (7a).
If no, go on to question (8).
- 7a. Is the material a commercial chemical product that exhibits a hazardous waste characteristic or is listed in 40 CFR 261.33 that is produced for application to the land?
 yes no
If yes, the material is not a solid waste.
If no, the activity results in use constituting disposal and the material is a solid waste. See applicable regulations, below.
8. Is the material used as a fuel or used to produce a fuel?
 yes no
If yes, go on to question (8a).
If no, go on to question (9).

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8a. Is the material a commercial chemical product that exhibits a hazardous waste characteristic or is listed in 40 CFR 261.33 and that is produced to be burned as fuel?

yes no

If yes, the material is not a solid waste.
If no, the activity results in burning for energy recovery, and the material is a solid waste. See applicable regulations, below.

9. Is the material used or reused

as an ingredient in an industrial process to make a new product without intermediate reclamation (regeneration or recovery of materials),

as an effective substitute for commercial products in a particular function or application, or

as a substitute for raw material feedstock in the primary production process from which it was generated, without being first reclaimed (a closed-loop process)?

If any of the above apply, the activity is use or reuse, and the material is not a solid waste.
If none of the above apply, go on to question (10).

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10. Is the material regenerated or are materials with value recovered from the original material?

yes no

If yes, the activity is reclamation. Go on to question (10a).

If no, please review the definitions of activities in this manual and reconsider your answers, or call the RCRA Hotline for assistance.

10a. Is the material

a hazardous waste listed under 40 CFR 261.31 or 261.32 (this provision excludes commercial chemical products, which are listed under 40 CFR 261.33),

a spent material exhibiting one of the characteristics of a hazardous waste given in 40 CFR 261.20-.24, or

a scrap metal?

If any of the above apply, the material is a solid waste. See applicable regulations, below.

If none of the above apply, go on to question (10b).

10b. Is the material

either a sludge or a by-product that exhibits one of the characteristics of a hazardous waste given in 40 CFR 261.20-.24, and that is not listed under 40 CFR 261.31-.32, or

a commercial chemical product that exhibits a hazardous waste characteristic or is listed under 40 CFR 261.33?

If any of the above apply, the material is not a solid waste.

If none of the above apply, please review the definitions of activities in this manual and reconsider your answers, or call the RCRA Hotline for assistance.

Applicable Regulations:

1. Is the waste exempt from regulation (see the list in Exhibit 6)?

yes no

If yes, the material is not regulated.

If no, the material is regulated. See item (2), below.

2. Owners or operators of facilities that store spent lead-acid batteries before reclaiming them are subject to notification requirements under Section 3010 of RCRA and to storage facility requirements under 40 CFR 264 and 265 Subparts A through L (waste analysis requirements under 40 CFR 264.13 and 265.13, and manifest requirements under 40 CFR 264.71, 264.72, 265.71, and 265.72 do not apply, however). Persons who generate, transport, or collect spent batteries, or who store spent batteries but do not reclaim them are not subject to regulation under Parts 262 through 266, and also are not subject to Section 3010 of RCRA. Requirements applicable to spent lead-acid batteries being reclaimed are summarized under 40 CFR 266 Subpart G.

Discussion:

Spent lead-acid batteries are defined as spent materials. Because material with value -- the lead -- is recovered from the batteries, the activity is classified as reclamation. EPA has issued a set of regulations stating that when reclaimed, lead-acid batteries are solid wastes but are subject to a reduced set of requirements. The batteries are regulated when stored by the person who is reclaiming them (i.e., the battery cracker) but are not regulated when handled by persons other than reclaimers prior to the reclamation.

See Also: Reclamation - Spent Material 2