

Guidelines for Management and Disposal of Hazardous Wastes from Polyurethane Processing

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Purpose

The purpose of this guide is to help downstream processors of polyurethane chemicals (referred to hereafter as processors) manage and dispose of resulting waste chemicals (hazardous) and empty containers in a manner that conforms to federal regulations.

Regulations

Hazardous waste regulations have been developed and implemented by the US Environmental Protection Agency (EPA) as directed by Congress in the Resource Conservation and Recovery Act of 1976 (RCRA) and subsequent amendments. EPA's hazardous waste management regulations are currently codified in 40 CFR Parts 260 to 279. Under the regulations, "generators" are defined as entities whose act or process produces hazardous waste or whose act first causes a hazardous waste to be subject to regulation. The RCRA regulations impose various requirements upon hazardous waste generators including waste classification, proper waste accumulation, use of transportation manifests and authorized hazardous waste transporters, recordkeeping, and emergency preparedness. RCRA envisions parallel federal and state regulatory and enforcement programs, in which EPA adopts generally applicable standards and approves state programs that satisfy federal requirements. At the time of publication, EPA has authorized hazardous waste management programs for 48 states and the District of Columbia. These state regulations are often identical in substance to the federal regulations. However, state programs may also be more stringent or more extensive than the corresponding EPA regulations. Moreover, in some cases, EPA has only authorized portions of state programs. As a result, both federal and state regulations may be in effect, depending on the state.

What is a Hazardous Waste?

EPA defines hazardous waste in 40 CFR Part 261. In order for a waste to be hazardous waste, it must first meet the EPA definition of “solid waste.” Hazardous wastes are a subset of solid waste.

The term “solid waste” is used in RCRA to refer to both non-hazardous and hazardous waste, including not only solids, but also semisolids, liquids, sludges, and compressed gases. Further, materials that are being disposed, accumulated, stored, or treated before or instead of being disposed, are solid waste. Also, spent materials that are accumulated, stored or treated before being reclaimed are usually solid waste. Generally, chemicals stored with no possibility of use or reclamation are solid waste. The regulations also contain provisions that allow certain types of recycled materials to be excluded from regulation as a solid waste. However, these recycling provisions (found at 40 CFR § 261.2 and § 261.4(a)) are very complex and careful analysis would be required before relying on any of these exclusions. Generally speaking, if materials are burned for energy recovery, used on the ground, or stored for long periods of time while waiting to be recycled, EPA will likely regard the materials as solid wastes, and therefore as potentially hazardous wastes.

Simply defined, a hazardous waste is a solid waste (as discussed above) which has properties that make it dangerous or potentially capable of having a harmful effect on human health or the environment if not managed correctly. A solid waste is considered hazardous if:

1. it is a listed hazardous waste published by EPA in 40 CFR Part 261, Subpart D or
2. exhibits at least one of the four hazardous characteristics defined in 40 CFR Part 261, Subpart C. Listed and characteristic hazardous wastes are identified using EPA codes consisting of one letter followed by three digits.

Some states may use additional codes for state specified hazardous or “special” waste streams. For listed wastes, the first letter in the code corresponds to the common list name (e.g., “F-list, K-list, P-list or U-list”). The first letter in the codes of characteristic wastes is D, followed

by three digits (e.g., D001, D023, etc.) assigned based upon the hazardous characteristic(s) the waste exhibits. Generators of hazardous wastes are required by law to identify their hazardous wastes with all applicable codes. As such, a listed hazardous waste that exhibits a hazardous characteristic must be identified with both the applicable listed and characteristic waste codes.

EPA views hazardous waste as being regulated from its “point of generation,” which often means when it is first removed from a manufacturing process. There is not a single list of hazardous waste that is continuously updated; rather, determining whether a waste is a hazardous waste is a process that involves a series of steps. Importantly, it is incumbent upon the generator to determine whether waste materials that result from their activities are a hazardous waste.

1. To determine if a waste is a regulated hazardous waste, the generator first needs to determine whether the waste fits within the definition of “solid waste” in accordance with 40 CFR § 261.2 and, if so, whether the waste is excluded from regulation under 40 CFR § 261.4.
2. Next, the generator needs to examine whether the waste is listed as a hazardous waste in 40 CFR Part 261, Subpart D.
3. Finally, the generator needs to consider whether the waste exhibits one or more of the hazardous characteristics identified in 40 CFR Part 261, Subpart C.

In making these determinations, generators may use either analytical testing or their knowledge regarding the process that generates the waste. Wastes such as outdated raw materials may not require testing since knowledge of the chemicals’ origins and characteristics may be applied in the determination. Often, Safety Data Sheets (SDSs) can be useful for this purpose. Generators should refer to 40 CFR § 261.11 for more information.

Listed Wastes:

There are four primary lists of hazardous wastes. To determine if a waste is a “listed waste,” a generator must have knowledge of the waste’s origin. The lists are described briefly below, but complete lists are included in 40 CFR Part 261, Subpart D.

- **F-list [40 CFR § 261.31]** — The F-list designates hazardous wastes from common industrial and manufacturing processes, such as spent solvents, electroplating wastes, wood-preserving wastes, certain landfill leachates, and more. Polyurethane processors may generate F-listed spent solvents (e.g., used methylene chloride, acetone, toluene, etc.). Spent solvents on the F-list are designated by the codes F001, F002, F003, F004 and F005.
- **K-list [40 CFR § 261.32]** — The K-list designates hazardous wastes from specific industries (e.g., ink formulating, petroleum refineries and metal smelting). It is unlikely that polyurethane processors generate K-listed hazardous waste, but refer to 40 CFR § 261.32 to review the list.
- **P-list [40 CFR § 261.33(e)]** — The P-list applies to unused discarded commercial chemical products with a sole-active ingredient found on the P-list. Off specification materials, container residues and spill residues of P-listed materials are also P-listed wastes. P-listed wastes are “acutely hazardous waste” and are subject to more stringent management standards than other hazardous wastes. It is unlikely that polyurethane processors will generate P-listed hazardous waste; however, processors should review the P-list to confirm.
- **U-list [40 CFR § 261.33(f)]** — The U-list is similar, to the P-list, however it only applies to unused discarded commercial chemical products with a sole-active ingredient that is not acutely hazardous. Off-specification materials, container residues and spill residues of U-listed materials are also U-listed wastes. Toluene diisocyanate (TDI) (U223), 4,4’ - Methylene bis-(ortho- chloroaniline) (MBOCA) (U158), n-Dioctylphthalate (DOP) (U107), and methylene chloride (U080) are examples of chemicals used in the polyurethane industry that, upon disposal, may be U-listed hazardous wastes. Although discarded TDI is a U-listed waste, discarded TDI prepolymers may not be. In a TDI prepolymer, there may be some free TDI, but it is not the “sole active ingredient.” On the other hand, if pure TDI were spilled, all of the spill cleanup material would be U223. Similarly, in a B-side formulation with polyol and MBOCA, MBOCA is not the “sole-active ingredient” and therefore the B-side waste would not be listed. However, cleanup of a pure MBOCA spill would retain the U158 hazardous waste listing. Note that the “sole-active ingredient” requirement may be different at the state level, so please review state guidance when assessing U-list wastes.

Additional information describing the materials that are included in particular listings is usually found in the Federal Register notices in which the listing was proposed and adopted, as well as in related EPA guidance materials.

It is important to note that “listed” hazardous wastes continue to carry their waste codes even if all characteristics which originally made them hazardous, have been removed. These “listed” codes can only be removed through a formal “delisting” by a state or federal regulatory agency. Any material or waste that comes into contact with these “listed” wastes also carries the listed waste code based upon the “mixture rule” discussed in further detail below.

Characteristic Wastes:

EPA has identified four hazardous waste characteristics: ignitability, corrosivity, reactivity and toxicity. Generators may use testing or knowledge to determine if their wastes exhibit one or more of the characteristics.

- **Ignitability [40 § CFR 261.21]** — Ignitable wastes, denoted by the code D001, identifies wastes that can readily catch fire and/or sustain or promote combustion (i.e., strong oxidizers, spontaneously combustible materials). Generally, liquid wastes with a flash point below 60°C (140°F) in a closed-cup test are ignitable. Different criteria of ignitability apply to solids and compressed gases.
- **Corrosivity [40 § CFR 261.22]** — Corrosive wastes, denoted by the code D002, identifies wastes that are strongly acidic or alkaline (basic), generally in aqueous solutions with a pH ≤ 2 or ≥ 12.5 . Liquid wastes that are capable of rapidly corroding steel are also classified as corrosive.
- **Reactivity [40 § CFR 261.23]** — Reactive wastes, denoted by the code D003, are those wastes that are generally unstable, explosive, capable of detonation when heated under confinement, react violently with water or generate toxic gases, vapors, or fumes in dangerous quantities when mixed with water. Also, wastes are reactive if they generate toxic levels of cyanide or sulfide gas when exposed to pH between 2 and 12.5.
- **Toxicity [40 § CFR 261.24]** — Toxic wastes, denoted by the codes D004 through D043, are wastes that “fail” a test known as the Toxicity Characteristic Leaching Procedure (TCLP). The TCLP identifies wastes that are likely to leach concentrations of regulated constituents above specified thresholds (mg/L) in simulated landfill conditions. Regulated constituents include various organic chemicals (e.g., chlorinated solvents, volatiles and semi-volatiles), pesticides and heavy metals (e.g., mercury, lead, and cadmium).

The regulations do not require generators to conduct testing in order to characterize a particular wastestream. However, EPA enforcement personnel may take the position that if subsequent testing shows that the generator’s “knowledge based” characterization was incorrect, the generator could be subject to enforcement action. Waste determination decisions should be well-documented by the generator. In many instances, such records are required, as specified in 40 CFR § 261.11(f).

Consider Special Regulatory Conventions: The Mixture Rule

EPA has adopted what is known as the “mixture rule” (40 CFR § 261.3(a)(2)(iv)). The rule regulates mixtures of hazardous waste with non-hazardous waste — especially when listed wastes are concerned. In most cases, if a non-hazardous or characteristic waste is mixed with a listed waste, the entire resulting mixture is considered to be the listed hazardous waste and the original listed waste code applies to the entire mixture. Processors may wish to segregate listed wastes from non-hazardous waste because mixing listed waste with non-hazardous waste may result in the generation of increased volumes of listed hazardous waste.

If a characteristic waste is mixed with a non-hazardous waste (without any listed hazardous wastes), the resulting mixture is only considered hazardous if it still exhibits a hazardous waste characteristic. Even if the mixture is not hazardous, it may be subject to limited requirements under RCRA. It is also important to note that dilution is generally prohibited as a substitute for legitimate treatment. Under certain circumstances, characteristic wastes may be treated to remove the characteristic. However, with a few exceptions (discussed below), facilities treating hazardous wastes must have RCRA permits. Generators should therefore use caution when mixing hazardous wastes with other materials or wastes. These exceptions are discussed below.

Consider Exclusions: Empty Containers that Held Hazardous Wastes

Containers that once held hazardous chemicals or wastes are not regulated as hazardous waste containers if they meet the definition of “empty.” Under federal regulations, most containers are considered empty if:

- All waste has been removed using practices commonly employed to remove materials from that type of container (e.g., by pouring or pumping); and
- One of the following numerical standards is satisfied:
 - Less than one inch of residue remains on the bottom of the container or inner liner;
 - No more than 3% of weight of the total capacity remains in a container or inner liner, if the container is less than equal or equal to 119 gallons in size; or
 - No more than 0.3% by weight of the total capacity of the container remains in the container or inner liner, if the container is greater than 119 gallons in size (40 CFR § 261.7(b)(1)).

Containers that held acutely hazardous waste (e.g., P-listed waste) are considered empty only after being triple rinsed or cleaned by another method capable of removing the acute hazardous waste residue. (40 CFR § 261.7(b)(3)) The solvent rinsate is then managed as acute hazardous waste. (Note also that the material that is removed from the container to achieve the criteria described above may itself be a hazardous waste.)

While “empty” containers may not always be subject to RCRA, the disposal still may create liabilities. Options for managing RCRA empty containers include:

- Arrangements with the raw materials supplier to accept return drums.
- Ship empty drums to a drum reconditioner or a scrap recycler. In either case, these facilities should be investigated with care, as some drum recyclers and scrap facilities have ended up as federal or state Superfund sites. For more information on drum recycling facilities, see <http://www.reusablepackaging.org>.
- Disposal of empty drums into the local landfill is almost never an option since most landfills have an outright ban on accepting recognizable drums and other containers over a certain size. In some cases, processors may be able to destroy the drums (e.g., using a drum crusher) and send them to a landfill. Still, sending empty drums to a landfill can pose long-term liability issues if the landfill is ever found to be contaminated. Some processors prefer receiving raw materials in returnable shipping containers (e.g., totes) instead of drums.

What Responsibilities Does EPA Place Upon Hazardous Waste Generators?

EPA imposes numerous requirements upon hazardous waste generators which govern all aspects of a waste management program. These include waste classification, storage, reporting and recordkeeping, training, and making arrangements for transportation and disposal. For a polyurethane processor, these requirements will vary depending on how much hazardous waste the processor generates in a calendar month. This is because, under EPA rules, there are three classes of generators: large quantity generators (LQGs), small quantity generators (SQGs), and very small quantity generators (VSQGs) (previously known in federal regulations as “conditionally exempt small quantity generators” or CESQGs). SQGs and LQGs are subject to more hazardous waste management requirements as depicted in the table below, while VSQGs are usually subject to minimal regulation (in most states). Some states define generator status differently and set more stringent or different requirements upon SQGs and VSQGs, so it is important to check the relevant state requirements.

Because a facility’s generator status is determined on a monthly basis, it is possible that a facility may be subject to different requirements throughout the year. For example, under the EPA rules, if a facility generates less than 100 kilograms of hazardous waste in January, it would be considered a VSQG and subject to less hazardous waste management requirements for that type of facility. If the same facility generates 500 kilograms of hazardous waste in February, its status would change to SQG and the facility would be subject to the hazardous waste management requirements applicable to that type of facility. Please be aware that acutely hazardous waste has lower thresholds. Some generators take a conservative approach and choose to meet the most stringent requirements at all times, particularly if they know that their facility is likely to change generator status multiple times throughout the year.

Regulations also allow VSQGs and SQGs once a year during any event (planned or unplanned) to exceed their hazardous waste generator limits (100 kg per month for VSQGs and 1,000 kg per month for an SQG) without causing that generator to then become subject to the requirements of the next higher level of generator (40 CFR Part 262 Subpart L). However, to qualify for this allowance, the VSQGs and SQGs must notify EPA and meet certain other requirements (40 CFR § 262.232). In some cases, the generators can also petition to be allowed one additional exceedance of the relevant VSQG or SQG limit, without changing generator status (40 CFR § 262.233).

Table 1 presents an overview of EPA hazardous waste management requirements that apply to processors depending upon their generator status.

Table 1—Basic Hazardous Waste Generator Requirements*

Requirement (40 CFR § or Part)	VSQG	SQG	LQG
Definition of Generator Category (based on quantity of hazardous waste generated) [260.10]	≤100 kg/month (and ≤1 kg/month of acute hazardous waste, and ≤100 kg/month of acute spill residue or soil)	100-1,000 kg/month (and ≤1 kg/month of acute hazardous waste, and ≤100 kg/month of acute spill residue or soil)	>1000 kg/month (or >1 kg/month of acute hazardous waste, or >100 kg/month of acute spill residue or soil)- NO UPPER LIMITS
Waste Determination and Associated Recordkeeping [262.11]	✓ kg/(except recordkeeping)	✓	✓
On-Site Accumulation Quantity [262.14(a)(3)-(4) and 262.16(b)(1)]	≤1,000 kg (and ≤1 kg of acute hazardous waste, and ≤100 kg/month of acute spill residue or soil)	≤6,000 kg	No Limit
Accumulation Time Limit [262.16(b)-(d) and 262.17(a)]	No Limit	180 Days (or 270 Days if transporting >200 miles)	90 Days
EPA ID Number [262.18]	Not Required ¹	✓	✓
Manifesting [262, Subpart B]	Not Required ¹	✓	✓
Property Line Conditions (50-foot buffer zone for ignitable/reactive wastes) [262.17(a)(1)(vi)]	Not Required	Not Required	✓
Mark Containers "Hazardous Waste" and Other Information [262.16(b)(6)(i)(A)-(B), 262.17(a)(5)(i)(A)-(B)]	Not Required	✓	✓
Mark Containers with Accumulation Start Date [262.16(b)(6)(i)(C) and 262.17(a)(5)(i)(C)]	Not Required	✓	✓
Satellite Accumulation [262.15]	Not Required	✓	✓
Personnel Training [262.17(a)(7)]	Not Required	Minimal requirements in 262.16(b)(9)(iii)	✓
Preparedness, Prevention, and Emergency Procedures [262.17(a)(6) and 262, Subpart M]	Not Required	Reduced requirements in 262.16(b)(8)-(9)	✓
Contingency Planning [262.17(a)(6) and 262, Subpart M]	Not Required	Minimal requirements in 262.16(b)(9)	✓
Quick Reference Guide [262.262(b)]	Not Required	Not Required	✓
Accumulation in Containers [262.16(b)(2) and 262.17(a)(1)]	Not Required		✓ (includes reference to air emission standards in 265 Subparts AA, BB, CC)
Accumulation in Tanks [262.16(b)(23) and 262.17(a)(2)]	Not Required	✓	✓ (includes reference to air emission standards in 265 Subparts AA, BB, CC)
Recordkeeping and Reporting [262, Subpart D]	Not Required	Only 262.44	✓
Land Disposal Restrictions [262.16(b)(7) and 262.17(a)(9), both referring to 268]	Not Required	✓	✓

*Table adapted from EPA's hazardous waste generator regulatory summary - <https://www.epa.gov/hwgenerators/hazardous-waste-generator-regulatory-summary>.

¹Although not legally required, many transporters will not handle hazardous waste without these items.

Manifest and Recordkeeping Requirements

As set forth in the above chart, the regulations impose different manifest and recordkeeping requirements upon generators, depending on whether they are VSQGs, SQGs, or LQGs. VSQGs are essentially exempted such requirements. By contrast, SQGs and LQGs must prepare manifests before handing over wastes for shipment. Manifests are used to track waste shipments and to verify that they have reached the appropriate destination. A generator can establish a system to verify that signed copies of the manifest are returned from the Treatment, Storage and Disposal Facility (TSDF) to which wastes have been shipped. If a returned copy is not received from the TSDF in a timely fashion, it may be necessary to submit an "exception report" to EPA (40 CFR § 262.24).

Recordkeeping requirements are important because federal and state enforcement personnel frequently target recordkeeping errors during site inspections, and thus a failure to maintain adequate records can create a risk of administrative or civil penalties. LQGs have extra requirements to keep records documenting compliance with personnel training, contingency planning, and other requirements. Recordkeeping requirements are sometimes overlooked by generators and can also be the focus of regulatory inspections. Federal and state inspectors often use checklists when they conduct RCRA inspections, and these basic recordkeeping requirements are typically included.

Beginning in 2021, an SQG must re-notify EPA or the authorized state of its generator status every four years. LQGs must continue to reconfirm their generator status through biennial reports to EPA or annual reports where required (262.18(d)).

Also, LQGs must now notify EPA or their authorized state when the entire facility is closed and confirm that generator accumulation areas have been properly closed by removal of all hazardous waste and decontamination to below risk-based closure standards (262.17(a)(8)(ii)). If an LQG closes a hazardous waste accumulation unit without closing the entire facility, it must either keep a record of the closure or meet the

closure standard for the unit and notify the relevant regulatory authority (262.17(a)(8)(i)).

Storing Hazardous Waste

The following discusses some of the requirements for storage of hazardous wastes by SQGs and LQGs.

Satellite Accumulation:

When hazardous waste is accumulating at or near the point of generation (the location where it is initially generated) and is under control of the process operator generating that waste, it is considered to be in a "satellite accumulation area" and is subject to regulatory requirements (40 CFR

§262.15). For example, hazardous waste containers must remain closed except when adding, removing, or consolidating waste, or when temporary venting of a container is necessary; containers must be marked with the words "Hazardous Waste" and an indication of the hazards of the containers' contents; containers must be in good condition and compatible with the wastes they contain; and no more than 55 gallons (the equivalent of one drum) of hazardous waste or one quart or one kilogram (2.2 pounds) of acutely hazardous waste may be stored at each satellite accumulation area. The federal rules do not limit the time that wastes can remain in the satellite accumulation area, as long as the quantities described above are not exceeded. However, some states may limit the time wastes can be accumulated in satellite areas, and thus the state rules should be reviewed to ensure compliance. Under the EPA rules, if the amount of waste in the satellite accumulation area exceeds the specified quantities, the containers holding the excess amount must be marked with the date the excess amount began accumulating and also must be transferred to a designated central accumulation area (described below) within three consecutive calendar days. Note this 3 day timeframe may also vary by state.

Hazardous Waste in a Designated Central Accumulation Area:

Once hazardous waste leaves the satellite accumulation area and enters a different location, referred to as the "central accumulation area," the

waste is subject to more requirements. When waste leaves the satellite accumulation area, “the clock starts,” and from this date, the waste must be shipped off site to a permitted hazardous waste TSDF within 90, 180 or 270 days, depending on the generator’s status (e.g., SQG or LQG) and distance from the TSDF (40 CFR §§ 262.16(b)-(d) and 262.17(a)).

In the central accumulation area, each hazardous waste container must be clearly marked with the date it was placed in the area. SQGs and LQGs must identify the risks of each hazardous waste that is accumulated in a container or tank (or in a satellite accumulation area) by marking on the container what hazards are associated with the waste, such as those mentioned above (e.g. ignitability, reactivity, corrosivity, etc.), as per CFR 262.15(a)(5)(ii); 262.16(a)(6)(i)(B) and (ii)(B); 262.17(a)(5)(i)(B) and (ii)(B). All containers and tanks also must clearly be marked “Hazardous Waste.” Emergency equipment shall be maintained at the accumulation area and periodically tested to ensure it is in working order (e.g., communication device or alarm system, fire extinguishers, spill control equipment, etc.) (40 CFR § 262.16(b)(8)(ii)-(iii) and 262.252-262.253). Waste containers must also be arranged in the central accumulation area so that there is adequate aisle space to allow for the flow of emergency personnel and equipment. Incompatible wastes also must be separated to the extent possible using distance, berms, or containment pans. The accumulation area must be inspected weekly for leaks and deterioration, and to ensure adequate spill response materials are on hand.

Disposing of Hazardous Waste

Most generators ship hazardous waste to permitted TSDFs, such as hazardous waste landfills, incinerators, fuel blenders, or solvent reclamation facilities. As specified in the EPA regulations, these shipments must comply with the US Department of Transportation (DOT) Hazardous Materials Regulations, 49 CFR Parts 171-180. Hazardous waste shipments must be accompanied by a hazardous waste manifest (shipping paper) and transported by a transporter with a federal Identification Number (40 CFR Part 262, Subpart B). Some states also have permit or licensing


requirements for hazardous waste transporters. Generators must ship hazardous wastes to permitted TSDFs (see 40 CFR § 261.12(c)).

Prior to off-site disposal, careful waste segregation may be important for both safety and economic reasons. For example, if methylene chloride spent solvent waste (listed hazardous waste F001) is mixed with a B-side polyol blend, then more hazardous waste is generated (due to the mixture rules discussed above), and the cost of disposal may escalate because of the increased volume of hazardous waste. In addition, such a mixture may decrease the opportunity for fuel blending the polyol or recycling the methylene chloride. Fuel blending and recycling generally are less expensive and more desirable than conventional hazardous waste incineration. TSDFs typically may accept only certain types of hazardous wastes, and many facilities have pre-acceptance approval procedures.

Potential liability may arise from the disposal of any chemical wastes, most particularly hazardous waste. Under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or “Superfund”), a generator who arranges for the disposal or treatment, or transportation for disposal or treatment, of a hazardous substance can potentially be held liable for any future remedial costs associated with those substances. The definition of “Hazardous Substance” under CERCLA is considerably broader than RCRA hazardous wastes, and includes MDI, TDI, and other products used in the polyurethane industry. To limit potential liability, processors should follow EPA and DOT requirements for disposing, treating, and transporting all waste. Processors may also want to be careful in selecting disposal facilities, to ensure they are properly handling the wastes.

Treating or Disposing of Hazardous Waste After On-Site

In limited circumstances, processors who generate hazardous waste may treat the waste on site. However, before treating hazardous waste, processors should investigate whether the treatment they are envisioning requires a RCRA treatment (“Part B”) permit. In fact, with few exceptions, on-site treatment requires a RCRA permit (see 40 CFR Part 270). RCRA permits are costly and time consuming to obtain, and may subject a



facility to RCRA corrective action which could impose significant additional obligations on the facility to clean up any historical contamination at the facility. Treating a hazardous waste without a permit when one is required can subject processors to civil penalties or criminal prosecution for noncompliance.

One widely applied type of hazardous waste treatment that usually does not require a permit is elementary neutralization (adjusting the pH of an acidic or basic solution for wastes that only exhibit the characteristic of corrosivity) in a tank or container. EPA also allows SQGs and LQGs (but not VSQGs) to treat hazardous waste in accumulation containers without a permit, provided that the containers are managed in compliance with EPA's container management standards for such generators (as discussed above).¹ EPA describes this exemption in its Federal Register (FR) notice dated March 24, 1986 (51 FR 10168) as well as in subsequent FR notices and interpretive memos. This allowance is quite broad in that it generally does not limit what type of treatment may take place (e.g., precipitation, oxidation/reduction, polymerization), except that thermal treatment is prohibited. Still, when treating a listed hazardous waste, the treatment residue generally carries the listed waste code of the original hazardous waste, even if the waste has been substantially transformed and does not exhibit any hazardous waste characteristics (40 CFR 261.3(c)(2)(i), commonly known as the "derived-from" rule). Therefore, the usefulness of this allowance may be limited for listed wastes, because the residue after treatment retains the hazardous waste listing and must be managed accordingly.

For example, if excess, pure TDI waste (listed hazardous waste U223) is reacted with a polyol, the resulting inert polyurethane would still be regulated as U223 hazardous waste. However, excess MDI waste reacted with polyol would not result in a regulated material because MDI is not a U-listed chemical. Processors are cautioned to check with their state regulators before treating any hazardous waste.

Keep in mind that permits for treatment are generally required for both RCRA "hazardous wastes" and state regulated hazardous wastes. Generators typically may treat wastes that are not regulated as hazardous.

Where Can I Get More Information?

1. www.epa.gov

EPA's official web site.

2. www.epa.gov/epawaste/index.htm

Links to information concerning permits, storage, disposal, recycling, identification of hazardous waste, regional EPA and state hazardous waste offices and EPA regulations.

3. www.epa.gov/rcraonline

RCRA Online — enables you to search for questions/ answers; guidance documents on all aspects of EPA's hazardous waste regulations.

4. <http://hazmat.dot.gov>

DOT HazMat site: information regarding regulations governing the transportation of hazardous materials.

5. <https://dii.americanchemistry.com/Environment-Health-and-Safety/WorkerIndustry-Health-and-Safety-Guidance/Disposal-of-Diisocyanates.html>

ACC DII Panel site: considerations when disposing of waste TDI and waste MDI.

Legal Notice:

These Guidelines were prepared by the American Chemistry Council's Center for the Polyurethanes Industry. They are intended to provide general information on the Resource Conservation and Recovery Act of 1976 (RCRA), as amended by the Hazardous and Solid Waste Amendments (HSWA) of 1984. They are not intended to serve as legal advice, a substitute for in- depth training or specific handling or storage requirements, nor are they designed or intended to define or create legal rights or obligations. These Guidelines are not intended to be a "how-to" manual, nor are they a prescriptive guide. All persons involved in the responsible disposal of wastes and containers from polyurethane processing have an independent obligation to ascertain that their actions are in compliance with current federal, state and local laws and regulations and should consult with legal counsel concerning such matters. The Guidelines are necessarily general in nature and individual companies may vary their approach with respect to particular practices based on specific factual circumstance, the practicality and effectiveness of particular actions and economic and technological feasibility. Neither the American Chemistry Council, nor the individual member companies of the Center for the Polyurethanes Industry of the American Chemistry Council, nor any of their respective directors, officers, employees, subcontractors, consultants, or other assigns, makes any warranty or representation, either express or implied, with respect to the accuracy or completeness of the information contained in these Guidelines ; nor do the American Chemistry Council or any member companies assume any liability or responsibility for any use or misuse, or the results of such use or misuse, of any information, procedure, conclusion, opinion, product, or process disclosed in these Guidelines. NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.

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