



Regulatory Consensus on Health Care Issues

Guidance for Minnesota generators of health care-related wastes

Applicability

Except where specifically noted, the hazardous waste programs of the Minnesota Pollution Control Agency (MPCA) and the Minneapolis-St. Paul metropolitan counties of Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington (Metro counties) have reached consensus on the interpretations, guidance, and allowances discussed in this fact sheet. Generators of health care-related wastes may apply this guidance at any location in Minnesota.

Terminology and references

Characteristic waste – A waste is a *characteristic hazardous waste* in Minnesota if it displays one or more of the following traits when accumulated for disposal or at the time of disposal: ignitability, reactivity, corrosivity, lethality, toxicity, or is an oxidizer. Visit the MPCA at <http://www.pca.state.mn.us/publications/w-hw2-04.pdf> to view hazardous waste fact sheet #2.04, [Characteristic Hazardous Wastes](#), for more information regarding characteristic wastes.

Empty container – A container that held a non-acute hazardous waste or a product that would be a non-acute hazardous waste at the time of disposal is only “empty” and exempt from further regulation after two requirements are met:

1. All material has been removed that can be removed using the normal means for that container.
2. Less than three percent of the capacity of the container remains as residue (Three percent applies to containers of 119 gallons or less. Larger containers have different standards).

If a container held an acute hazardous waste or a product that would be acutely hazardous at the time of disposal, it is not “empty” or exempt from regulation until it has been triple-rinsed (rinsed three times) using a solvent that can dissolve the contents. The rinse liquid is a hazardous waste.

Listed waste – A waste is a *listed hazardous waste* if it is identified on any of the four hazardous waste lists or contains polychlorinated biphenyls (PCBs) at greater than 50 parts per million (ppm). Of the four lists, generally only three apply to health care providers. Visit the MPCA at:

- <http://www.pca.state.mn.us/publications/w-hw2-00.pdf> to view hazardous waste fact sheet #2.00, [F List of Hazardous Wastes](#)
- <http://www.pca.state.mn.us/publications/w-hw2-02.pdf> to view hazardous waste fact sheet #2.02, [P List of Acute Hazardous Wastes](#)
- <http://www.pca.state.mn.us/publications/w-hw2-03.pdf> to view hazardous waste fact sheet #2.03, [U List of Hazardous Wastes](#)

Publicly Owned Treatment Works – Your Publicly Owned Treatment Works (POTW) is the authority that operates the sanitary sewage treatment plant to which your facility discharges.

Waste/Issue	Regulatory consensus
Acute hazardous waste accumulation	<p>Health care providers and pharmacies that are Very Small Quantity Generators of hazardous waste (VSQGs) may accumulate up to one kilogram (kg) of finished form pharmaceutical acute hazardous waste. (The one kg limit does not include satellite-accumulated waste.) Accumulation containers must be compatible with the contents, closed, labeled and inspected at least weekly. If you meet these requirements, you do not need to meet additional acute hazardous waste accumulation requirements or comply with the one-quart limit for acute hazardous waste discussed below.</p> <p>If using satellite accumulation, you may only accumulate up to one quart of acute hazardous waste in each satellite accumulation area. For more information on acute hazardous waste accumulation, see MPCA hazardous waste fact sheet #2.02, P List of Acute Hazardous Waste, at http://www.pca.state.mn.us/publications/w-hw2-02.pdf.</p>
Acute pharmaceutical containers	<p>Unless they have been triple-rinsed, manage containers as acute hazardous waste if they held pharmaceuticals that would be acute hazardous wastes. You may report only the mass (weight) of the residue inside the container and count only that amount when calculating generator size. For more information, see MPCA hazardous waste fact sheet #2.02, P List of Acute Hazardous Waste, at http://www.pca.state.mn.us/publications/w-hw2-02.pdf.</p>
Aerosol inhalers	<p>Empty inhalers (meet empty container standards and have no remaining pressure) – These are exempt from hazardous waste regulation. Recycle, if possible, or manage as an industrial solid waste according to solid waste requirements.</p> <p>Non-empty inhalers – Since most inhalers use an ignitable propellant, if not empty, they will be a D001 ignitable hazardous waste at disposal. Evaluate to determine whether they are hazardous and manage accordingly; or, manage as a hazardous waste without evaluation. For more information, see MPCA hazardous waste fact sheet #4.00, Managing Waste Aerosols, at http://www.pca.state.mn.us/publications/w-hw4-00.pdf.</p>
Alcohol-based hand sanitizers	<p>Many waterless hand sanitizer products are alcohol based and would be D001 ignitable hazardous wastes the time of disposal. Use of these products as intended is not “disposal” because the material never becomes a waste. Ensure alcohol-based hand sanitizer dispensers that do not meet the empty container requirements are managed as hazardous waste or are evaluated and determined to be non-hazardous.</p>
Ambulance waste	<p>Hospitals in Minnesota are required to accept properly packaged and labeled infectious waste from ambulance services. They are not required to accept infectious waste containers that include hazardous waste, but which are not properly packaged or labeled as dual waste containers or do not meet dual waste container requirements. Hospitals that choose to accept hazardous or dual wastes from one ambulance service must then accept such wastes from all ambulance services that serve their facility. Waste accepted from an ambulance service is considered to be the hospital’s waste. Ambulance services may choose to consolidate their own hazardous waste at their central business location and dispose of it from that location. For more information, see MPCA hazardous waste fact sheet #3.11, Managing Hazardous Waste Generated by Construction and Service Contractors, at http://www.pca.state.mn.us/publications/w-hw3-11.pdf.</p>
Black containers	<p>You are not required to use any particular color for hazardous waste containers. Some container suppliers and waste vendors encourage use of color-coded black containers for pharmaceutical hazardous wastes. Use of any hazardous waste color-coding is voluntary; however, if you choose to sort your waste by container colors, ensure staff is trained in and follows the system. However, regardless of color, you must properly label all hazardous waste containers. For more information on hazardous waste container requirements, see MPCA hazardous waste fact sheet #1.04/ 1.05, Label and Store Hazardous Waste, at http://www.pca.state.mn.us/publications/w-hw1-04-05.pdf.</p>

Waste/Issue	Regulatory consensus
Carbon dioxide absorbents	<p>Carbon dioxide (CO₂) absorbents used in gaseous anesthesia systems may contain barium and therefore be D005 toxic hazardous wastes when disposed of; or, they may carry health warnings that render them MN01 lethal hazardous wastes. Although solids, these materials may absorb enough moisture during use, accumulation, or disposal to make them regulated liquids as D002 corrosive hazardous wastes.</p> <p>Do not dispose of CO₂ absorbent as solid waste unless you have determined through evaluation that they are non-hazardous in Minnesota. For information about toxicity and corrosivity characteristics, see MPCA hazardous waste fact sheet #2.04, Characteristic Hazardous Wastes, at http://www.pca.state.mn.us/publications/w-hw2-04.pdf. For information about the lethality characteristic, see MPCA hazardous waste fact sheet #2.05, The Lethality Characteristic, at http://www.pca.state.mn.us/publications/w-hw2-05.pdf.</p>
Chemotherapy hood filters	<p>Filters from chemotherapy preparation hoods may be characteristic hazardous wastes if contaminated with hazardous constituents from the pharmaceuticals prepared under them. Each health care facility must determine the potential contaminants on their waste hood filters and evaluate them for appropriate characteristics.</p>
Chemotherapy wastes	<p>Bulk chemotherapy waste: Though not defined in Minnesota law, <i>bulk chemotherapy waste</i> is considered to mean waste that is known to contain chemotherapy agents. Examples include spill clean-up materials, contaminated personal protective equipment (PPE), and non-empty containers and infusion sets.</p> <p>Assume bulk chemotherapy waste is MN01 lethal hazardous waste unless you show through evaluation and documentation that it is non-hazardous. Safe work practices dictate that disposable infusion equipment be handled as little as possible after use to minimize occupational exposure. You are encouraged to manage all disposable chemotherapy infusion equipment holding any free liquid as hazardous bulk chemotherapy waste rather than attempting to empty it to meet the empty container standards.</p> <p>Trace chemotherapy waste: Though not defined in Minnesota law, <i>trace chemotherapy waste</i> is considered to mean waste that may have come into contact with a chemotherapy agent, but is not known to contain chemotherapy agents. Examples include uncontaminated PPE, packaging, and empty containers and infusion sets. You may assume trace chemotherapy waste is non-hazardous.</p>
Clinitest™ tablets	<p>Unreacted Clinitest™ tablets are assumed to be D003 reactive and MN01 lethal hazardous waste unless shown through evaluation to be non-hazardous. Reacted Clinitest™ tablets are assumed to be lethal hazardous wastes unless shown through evaluation to be non-hazardous.</p>
Construction and service contractor wastes	<p>Construction and service contractors may choose to transport wastes generated at a remote job site to their place of business for consolidation and subsequent shipment for disposal. Home health care providers, including those using personal vehicles for business purposes, and ambulance services are considered eligible for this allowance. For more information, see MPCA hazardous waste fact sheet #3.11, Managing Hazardous Waste Generated by Construction and Service Contractors, at http://www.pca.state.mn.us/publications/w-hw3-11.pdf.</p>
Containers, pharmaceutical	<p>Since you may have difficulty ensuring pharmaceutical containers meet empty container standards (page one) before disposal, you may choose to manage containers that held hazardous pharmaceutical wastes as hazardous wastes themselves rather than attempt to empty them. See the <i>Acute pharmaceutical containers</i> for guidance on counting pharmaceutical containers towards amount of hazardous waste generated.</p>

Waste/Issue	Regulatory consensus
Cuvettes, cartridges, and boats	Many laboratory analyzers use reagents, calibrators, and cleaners packaged in cuvettes, cartridges, or boats. If any of these wastes may release liquids when handled in the disposal process, ensure you evaluate the liquids in the package separate from the cuvette, cartridge, or boat, rather than the package as a whole. Some cuvette, cartridge, and boat manufacturers have published Material Safety Data Sheets (MSDS) showing the concentration of hazardous constituents as a percentage of the whole package, including the weight of plastic or metal components. Applying these concentrations as printed may inadvertently lead to a false evaluation of the liquid waste as non-hazardous.
Dental amalgam	In Minnesota, mercury-containing amalgam in any form that will be recycled may be managed the same as universal waste. For more information, see MPCA hazardous waste fact sheet #4.62, Universal Wastes , at http://www.pca.state.mn.us/publications/w-hw4-62.pdf . Mercury-containing amalgam that is not recycled must be managed under the full hazardous waste requirements.
Dental wastewater	<p>If your site is located within a Metro County, use an amalgam separator approved by the Metropolitan Council Environmental Services (MCES) or the MPCA (see <i>More information</i>). If outside the Metro Counties, you are still encouraged to use an approved amalgam separator. Notify your POTW of your dental wastewater discharge and whether you are using an amalgam separator. You may manage mercury-containing wastewater pretreated by an approved and properly maintained amalgam separator the same as universal waste. For more information, see MPCA hazardous waste fact sheet #4.62, Universal Wastes, at http://www.pca.state.mn.us/publications/w-hw4-62.pdf.</p> <p>Manage mercury-containing wastewater that has not been pretreated by an approved amalgam separator as a D009 toxic hazardous waste. Do not discharge mercury-containing wastewater, whether or not it has been pretreated, to a septic system.</p>
Dual wastes	In Minnesota, dual waste means waste that simultaneously meets the definitions of both hazardous waste and infectious waste. Manage dual waste in compliance with both hazardous waste and infectious waste regulations.
Dust and particles	Dust and particles from a solid pharmaceutical that is a hazardous waste when disposed of are also hazardous wastes. You may visually examine solid surfaces that may have come into contact with solid pharmaceuticals (such as tablets) to identify whether contamination has occurred. Materials used to clean up dust from or particles of an acute hazardous waste are an acute hazardous waste; manage them accordingly.
ECG & EKG electrodes	Many electroencephalograph (ECG) and electrocardiogram (EKG) electrodes contain silver in metallic or gel form. If you have waste electrodes, you must evaluate them before disposal or assume they are D011 toxic hazardous wastes. At this time, the MPCA has not received adequate information for a wide enough variety of electrodes to issue blanket guidance about their hazardous waste status.
Epinephrine	<p>In Minnesota, epinephrine salts, which comprise the majority of pharmaceutical forms of epinephrine, are not considered to meet the definition of a P042 acute hazardous waste. Therefore, only waste that contains epinephrine base (Chemical Abstract Service (CAS) Registry number 51-43-4) as its sole active ingredient will be a P042 acute hazardous waste at the time of disposal. Health care providers must determine which form of epinephrine is contained in their pharmaceutical epinephrine solutions.</p> <p>For those applying the Alternate Method to Evaluate Pharmaceutical Waste for the Lethality Characteristic, the MPCA considers epinephrine in general to be an endocrine disruptor and therefore a lethal hazardous waste. However, based on calculations of median lethal dose under the Lethality Rule using data provided by regulated parties, the MPCA will allow generators of waste epinephrine with concentrations <i>continued</i></p>

Waste/Issue	Regulatory consensus
Epinephrine (<i>continued</i>)	<p>less than 0.24 percent to assume it is not lethal. The MPCA and metropolitan counties strongly encourage the best management practice of using incineration to dispose of even nonhazardous epinephrine waste.</p> <p>Therefore:</p> <ul style="list-style-type: none"> • Unused epinephrine base (CAS #51-43-4) is an acute P042 listed hazardous waste • Waste used epinephrine base and waste epinephrine salts at a concentration of 0.24 percent or more are MN01 lethal hazardous wastes under the alternate method • Waste epinephrine salts <0.24 percent may be assumed to be non-lethal <p>Evaluate waste epinephrine for all other hazardous waste characteristics unless you manage it as a hazardous waste.</p>
Excess and residual pharmaceutical in a used dispensing instrument	<ul style="list-style-type: none"> • Excess pharmaceutical in a dispensing instrument is material remaining in the barrel of a syringe with the plunger not fully depressed. • Residual pharmaceutical in a dispensing instrument is material remaining in the needle, hub, and adhering to the walls of the barrel after the plunger has been fully depressed. • Dispensing instrument (in Minnesota) is considered to include manual injection syringes, injection ‘pens,’ and ready-to-assemble syringes, including CarpuJect™, StatDose™, and similar products. Oral and rectal syringes and intravenous administration sets are not considered dispensing instruments for the purpose of this interpretation. <p>Evaluating for hazardous waste listing: Excess and residual pharmaceuticals remaining in a used dispensing instrument are considered to have been used for their intended purpose and therefore no longer meet the definition of U-Listed or P-Listed hazardous wastes. If a carpule or similar portion of a used dispensing instrument is separated before disposal, the carpule is still considered to have been used for its intended purpose.</p> <p>Evaluating for hazardous waste characteristics: A used dispensing instrument or portion of a dispensing instrument containing excess pharmaceutical is considered “non-empty”; the excess pharmaceutical must be evaluated for hazardous waste characteristics or managed as a characteristic hazardous waste.</p>
<p>Note: A used syringe containing excess hazardous waste pharmaceutical is a dual waste subject to both hazardous and infectious waste regulatory requirements.</p>	
Formaldehyde and formalin solutions	<p>Formalin is a solution of formaldehyde, methanol, and water. Used or unused solutions with a formaldehyde concentration of 20 percent or more are MN01 lethal hazardous wastes. Used solutions with a formaldehyde concentration of less than 20 percent are not considered hazardous waste. Unused solutions in which formaldehyde is the sole active ingredient are U122 listed hazardous wastes at all concentrations. If you intend to discharge waste formaldehyde or formalin to a sanitary sewer, you must notify the POTW before discharge regardless of its hazardous waste status. Never discharge waste formalin or formaldehyde solutions to a septic system.</p>
Glutaraldehyde solutions	<p>Solutions (like cold sterilants) with a glutaraldehyde concentration of 27 percent or more are considered MN01 lethal hazardous wastes. Since glutaraldehyde is an aquatic toxicant, facilities are encouraged to neutralize waste glutaraldehyde with glycine before discharge to a POTW. Health care providers that intend to discharge glutaraldehyde-containing wastes to a POTW must notify the POTW before discharge, whether or not they are neutralized.</p>

Waste/Issue	Regulatory consensus
Hazardous waste codes	<p>Health care providers and other generators of hazardous waste must report their hazardous waste generation using specific hazardous waste codes in several different situations. The appropriate codes a generator must use are specific for each situation:</p> <ul style="list-style-type: none"> • Manifesting – Generators must enter the six four-character hazardous waste codes that are most representative of the properties of the waste. If the waste includes any Minnesota-specific hazardous waste codes, such as MN01, MN02, or MN03, include these in the six entered codes. For more information on manifesting, see MPCA hazardous waste fact sheet #1.07, Manifest Shipments of Hazardous Waste, at http://www.pca.state.mn.us/publications/w-hw1-07.pdf. • Land Disposal Restrictions – Generators required to provide a Land Disposal Restrictions form must enter all of the four-character hazardous waste codes represented in the waste. For more information on Land Disposal Restrictions, see EPA training module #EPA-530-K-05-013, Introduction to Land Disposal Restrictions, available on the EPA website at http://www.epa.gov/. • Annual reporting – Generators in the seven-county metropolitan area must follow the annual reporting process for their county. In greater Minnesota, Large Quantity Generators (LQGs) and Small Quantity Generators (SQGs) must enter all of the four-character hazardous waste codes represented in their generated waste; VSQGs must enter all of the two-digit hazardous waste types represented in their generated waste. For more information on annual reporting in greater Minnesota, see MPCA fact sheet #7.01, Hazardous Waste License Application, at http://www.pca.state.mn.us/publications/w-hw7-01.pdf.
HemoCue™ cuvettes	<p>HemoCue™ cuvettes are assumed to be MN01 lethal hazardous wastes unless evaluated and determined to be non-hazardous. Ensure you evaluate the liquids separate from the cuvette container. See ‘Cuvettes, cartridges, and boats’ (page four).</p> <p>Note: HemoCue™ cuvettes contaminated with blood may be dual waste subject to both hazardous and infectious regulatory requirements.</p>
Household versus commercial pharmaceutical waste in health care facilities	<p>Pharmaceutical hazardous waste generated from commercial activities is regulated hazardous waste in Minnesota regardless of where it is generated. Pharmaceutical waste generated from non-commercial household activities is unregulated household hazardous waste in Minnesota, unless and until collected by a household hazardous waste collection program. Health care providers that generate pharmaceutical hazardous wastes from commercial activities are regulated hazardous waste generators. The MPCA considers the degree of centralized control and storage of pharmaceuticals in a facility as the most significant indicator of generation from commercial activities.</p> <p>Applying this indicator:</p> <ul style="list-style-type: none"> • Pharmaceuticals stored in a centralized, employee-controlled location separate from resident living areas, such as is required at hospitals, nursing homes, and boarding-care homes, will be considered generated from commercial activities and therefore regulated when discarded. • Pharmaceuticals stored in resident rooms or other non-central and unrestricted-access location, such as at home-care client houses, may be considered generated from non-commercial household activities and therefore household hazardous waste when discarded. <p>Note: Pharmaceutical waste generated in a long-term care facility with a maximum capacity of six may be considered household waste regardless of the control and storage indicators above.</p>

Waste/Issue	Regulatory consensus
Ictotest™ tablets	<p>Unreacted Ictotest™ tablets are assumed to be D003 reactive hazardous waste. Since reacted Ictotest™ tablets are a solid material, they do not meet the definition of a corrosive hazardous waste. While you may attempt to treat and dispose of reacted tablets by dissolving them in water in a closed container, you may create a D002 liquid corrosive hazardous waste. Corrosive hazardous wastes may be neutralized on site and discharged to a POTW. Health care providers that generate corrosive hazardous wastes and intend to discharge to a POTW must notify the POTW before discharge, whether or not the waste is neutralized.</p>
Infectious waste	<p>Ensure you have a written management plan for your infectious waste. Do not send your infectious waste management plan to the MPCA or Metropolitan County unless specifically requested. For more information about infectious waste management plans and other infectious waste requirements, see MPCA solid waste fact sheet #4.30, Infectious Waste: Management Guidance for Generators, at http://www.pca.state.mn.us/publications/w-sw4-30.pdf.</p>
Inspection of pipe to POTW	<p>All hazardous waste generators, including health care providers, that discharge hazardous waste to a POTW, must ensure that the generator-owned piping system carrying waste to the publicly owned sewer system will not release any hazardous waste to the environment. You are strongly encouraged to inspect your complete piping system periodically, including underground pipes, to ensure integrity.</p>
Intrauterine devices	<p>Some intrauterine devices (IUDs) may contain barium for radiopacity purposes, and some may contain pharmaceutical hormones to increase their effectiveness. When removed by a health care provider and disposed of, these IUDs may be D005 toxic hazardous wastes, MN01 lethal hazardous wastes, or both. Manage disposed IUDs as hazardous wastes or evaluate and show they are nonhazardous.</p>
Intravenous bags and sealed tubing	<p>An intravenous (IV) bag and its attached tubing (commonly referred to as an administration or infusion set) are together considered a container – not a <i>dispensing instrument</i>. When assessing whether an administration set is empty, you must include any excess and residual liquids in the set, including the attached tubing. If the container is not empty, you must evaluate the contents to determine whether it is hazardous waste. If tubing is designed to be removed from an administration set, it may be assessed separately from the IV bag once it is removed.</p> <p>Tubing flushed with saline at three times the volume of the tubing is considered to have met both the empty container requirement for all hazardous wastes and the triple-rinsing requirements for acute hazardous wastes. This interpretation applies only to that segment of tubing actually triple-rinsed and not to upstream tubing, attached IV bags, or other equipment.</p> <p>Note: Administration sets commonly leak so consider them <i>free liquids</i> and place them in a closed, leak-proof container when accumulated for disposal.</p>
Laboratory analyzer wastes	<p>Laboratory analyzer wastes (consisting of patient samples mixed with chemical reagents, calibrators and cleaners) commonly are either piped directly to a drain for discharge to a POTW or contained in cuvettes, cartridges, bubble tapes, or removable containers.</p> <p>Evaluate each individual waste generated by the analyzer at the point of generation before it is mingled or combined with other wastes. Each discharge pipe or container is considered a separate and distinct waste stream; evaluate each separately. Wastes from cuvettes, bubble tapes, and similar waste expelled from an analyzer at a common point may be considered a single waste stream for evaluation.</p> <p>Evaluate expired reagents or calibrators to determine whether they are listed or characteristic hazardous waste. Evaluate discharged or expelled wastes to determine whether they display one of the six hazardous characteristics. <i>continued</i></p>

Waste/Issue	Regulatory consensus
Laboratory analyzer wastes <i>(continued)</i>	<p>A complete and compliant evaluation will require one and may require both of the following:</p> <ul style="list-style-type: none"> • documentation from the analyzer manufacturer certifying the reagents, calibrators and cleaners are not listed and do not display any of the characteristics • documented test results from a representative sample(s) of the waste <p>Contact MPCA or metro county hazardous waste staff for guidance on collecting a representative sample from your analyzer. When determining the representative sample, you must take into account calibrations, cleanings, and number and types of tests specific to your analyzer and its use in your facility.</p> <p>Note: Lab analyzer wastes determined to be hazardous may be dual wastes subject to both hazardous and infectious waste regulatory requirements.</p>
Laboratory waste	<p>Health care providers must evaluate all laboratory waste before disposal to determine whether it is hazardous. Discharging or rinsing laboratory stains, reagents, and fixatives to a POTW is disposal. Document all evaluations; they must be available for inspection. For more information about evaluation, see MPCA hazardous waste fact sheet #1.01, Evaluate Waste; Determine Generator Size, at http://www.pca.state.mn.us/publications/w-hw1-01.pdf.</p>
Listed wastes excluded under certain conditions	<p>Certain listed chemicals are excluded from regulation as listed hazardous waste in Minnesota provided these two criteria are met:</p> <ol style="list-style-type: none"> 1. The waste was originally listed only for the characteristic(s) of ignitability, corrosivity, or reactivity. 2. The waste does not exhibit the characteristic(s) at the point of generation. <p>For example, nitroglycerin, originally listed for reactivity, is not reactive in final pharmaceutical form. At the time of disposal, that final form would not be a P081 acute hazardous waste. The wastes still must be evaluated for all other characteristics. For more information on this exception, see MPCA hazardous waste fact sheet #8.01, Exclusion of Some Characteristic Wastes under Certain Conditions, available at http://www.pca.state.mn.us/publications/w-hw8-01.pdf.</p>
Nicotine patches & gum	<p>In Minnesota, unused nicotine patches and gum destined for disposal are considered to be commercial chemical products, not manufactured articles, and therefore are P075 acute hazardous wastes. Manage packaging materials for nicotine patches and gum as acute hazardous waste according to the <i>Packaging</i> section of this fact sheet.</p> <p>In Minnesota, applied nicotine patches and chewed gum are considered <i>used</i> (regardless of how long the patch or gum was used by the patient) and therefore no longer meeting the definition of the P075 acute hazardous waste listing.</p>
Nitroglycerin	<p>Nitroglycerin in final pharmaceutical form may not be a P081 acute hazardous waste at the time of disposal. See <i>Listed wastes excluded under certain conditions</i>.</p>
OPA solutions	<p>Ortho-phthalaldehyde (OPA) cold sterilants, while not listed hazardous wastes and not generally hazardous for lethality or other hazardous characteristics, are aquatic toxicants. If you use OPA sterilants, you are encouraged to use glycine to neutralize the OPA before discharging it to a POTW. Remember you must notify your POTW before discharging OPA whether or not it is neutralized.</p>

Waste/Issue	Regulatory consensus
Packaging	<p><i>Packaging</i>, including wrappers, adhesive backing, and foil that immediately enclosed a pharmaceutical, are considered <i>segments of a container</i> that held the pharmaceutical. If the pharmaceutical was an acute hazardous waste at the time of disposal, the packaging must also be managed as an acute hazardous waste unless triple-rinsed.</p> <p>If the pharmaceutical was not acute hazardous waste and the packaging meets the empty container standards (page one), it is <i>empty</i> and exempt from further hazardous waste regulation.</p>
Pharmaceutical waste	<p>Before disposal, make sure to evaluate all pharmaceutical waste to determine whether it is hazardous. As an alternative, you may assume the waste is hazardous without evaluation. Note: Squirting or pouring pharmaceuticals into a sanitary sewer drain or absorbent material, commonly referred to as <i>wasting</i>, is a form of disposal. Document all evaluations; ensure they are available for inspection. For guidance evaluating pharmaceuticals, see MPCA hazardous waste fact sheet #4.45a, Evaluating Pharmaceutical Wastes, at http://www.pca.state.mn.us/publications/w-hw4-45a.pdf.</p> <p>For more information about discharging pharmaceuticals to a sanitary sewer for disposal, see <i>Sewered wastes</i>.</p>
Phentermine	<p>In Minnesota, phentermine hydrochloride is not considered to meet the definition of P046 acute hazardous waste. Therefore, only waste that contains phentermine base (CAS Registry number 122-09-8) as its sole active ingredient will be a P046 acute hazardous waste at disposal. Health care providers must determine what form of phentermine is contained in their pharmaceutical phentermine wastes. If your phentermine waste is not a P046 acute hazardous waste, ensure you still evaluate the waste for all other hazardous waste characteristics. Note, however, that Controlled Substances are no longer a risk criteria group under the Alternate Method to Evaluate Pharmaceutical Waste for the Lethality Characteristic.</p>
Radiological contrast media	<p>Barium-containing radiological contrast medias may be D005 hazardous waste. Evaluate your waste barium-containing contrast medias in the form in which you dispose of them to determine whether they are hazardous. Alternatively, you may choose to assume the wastes are hazardous without evaluating them. For guidance evaluating your waste, see MPCA hazardous waste fact sheet #1.01, Evaluate Waste: Determine Generator Size, at http://www.pca.state.mn.us/publications/w-hw1-01.pdf.</p>
Reverse distribution of pharmaceuticals	<p>Pharmaceuticals contained in original manufacturer or appropriate closed dispensing containers that have not left your facility's control may be shipped through the established pharmaceutical reverse distribution system as long as:</p> <ul style="list-style-type: none"> • you can establish that they will be recycled or disposed of as hazardous wastes and • you meet certain conditions <p>You no longer need to differentiate between pharmaceutical <i>products</i> and <i>wastes</i> you ship through the reverse distribution system; however, you must comply with all return criteria of your reverse distribution vendor. You do not need to count pharmaceuticals shipped through reverse distribution toward your regulated hazardous waste generator size. If you are located in the seven-county metropolitan area, you may need to report these wastes. Ensure you follow conditions described in MPCA hazardous waste fact sheet #3.36b, Reverse Distribution of Pharmaceuticals, at http://www.pca.state.mn.us/publications/w-hw3-36b.pdf.</p>

Waste/Issue	Regulatory consensus
Sewered wastes	<p>Before it is mingled or combined with other wastes, ensure you evaluate each waste sewered to a POTW to determine whether it is hazardous at the point of generation. You must notify your POTW before discharging any waste other than normal sink and toilet wastes. Ensure your notification includes at least these items:</p> <ul style="list-style-type: none"> • The identity of the waste • The hazardous waste status of the waste • The volume intended to be sewered to the POTW <p>You must notify your POTW even if you have already reported the wastes to your hazardous waste regulator (MPCA or Metro county); regulators will not forward notifications to the appropriate POTW.</p> <p>Remember that you must answer two separate questions:</p> <ol style="list-style-type: none"> 1. Is the waste hazardous? 2. Can the waste be discharged to the POTW? <p>The answers to these questions are quite distinct. Some wastes, even though nonhazardous, cannot be sewered. Other wastes, even if hazardous, can be safely treated by a POTW.</p> <p>In all cases, the prohibitions and limitations of your POTW on any discharges are final and binding. If you do not receive any response from your POTW within a reasonable period after you have notified them of an intended discharge, you may discharge that waste. Keep documentation of your notification to the POTW. Annually report all sewered hazardous wastes to your hazardous waste regulator.</p> <p>For POTW notification guidance, see MPCA hazardous waste fact sheet #7.11, Sewered Waste Notification, available at http://www.pca.state.mn.us/publications/w-hw7-11.pdf.</p> <p>Do not discharge hazardous or industrial wastes to a septic system.</p> <p>Note: In Minnesota, a patient's body is not considered to be a point of generation for hazardous waste purposes. You do not need to evaluate or manage as hazardous wastes liquids or solids expelled or excreted by a patient. These wastes may still be regulated infectious wastes, however. In addition, medical devices removed from a patient's body and laboratory samples mixed with stains, reagents, and fixatives are subject to evaluation and appropriate management.</p>
Stains, fixatives, and reagents	<p>At the point of generation and before mingling or combining it with other waste, evaluate each waste produced during the staining process to determine whether it is hazardous. When solutions are cleaned off slides or equipment and discharged into the sewer, the action is considered disposal; evaluate the solutions before they are diluted by the cleaning process. Notify your POTW before discharging any waste other than ordinary sink or toilet waste.</p>
Sterilization indicators	<p>Many steam sterilization indicator products, such as tapes and cards, contain sufficient lead or barium to render them D008 or D005 toxic hazardous wastes when discarded. Generators wishing to manage sterilization indicators and items to which the indicators are attached (such as sterilization wrap commonly known as 'blue wrap') as non-hazardous waste must evaluate each indicator/wrap combination separately. Analytical results may be extrapolated between identical products using the following calculation:</p> <p>Length of tape that may be considered non-hazardous with a given area of wrap = (Area of wrap to be used) x (Tested tape length ÷ Tested wrap area) x (Hazardous waste threshold concentration ÷ Test concentration result)</p> <p>Non-hazardous steam sterilization indicator products are also available.</p>

Waste/Issue	Regulatory consensus
Surgical/wound prep applicators	<p>Many health care providers use combination reservoir/sponge applicators for surgical preparation and wound cleaning. These applicators consist of a reservoir (typically cylindrical) containing a liquid disinfection agent and attached to an absorbent material. Many disinfection agents used in these applicators are alcohol-based and ignitable hazardous wastes at disposal. If the agent is ignitable, manage the entire applicator as a hazardous waste, unless the applicator meets the definition of <i>dry</i> and meets the empty container standards. For this purpose, <i>dry</i> means that no fluid drips from an absorbent when wrung with reasonable mechanical pressure.</p>
Surgical/wound prep gauze pads	<p>Many health care providers use pre-moistened gauze pads for wounds and preparing surgical sites. The pads commonly are packaged individually in approximately 2-inch-square foil and are usually pre-moistened with an ignitable alcohol-based disinfection agent. Pads and other absorbents that contained only an ignitable liquid, become dry through use and are dry at the time of disposal are non-hazardous. Each generator must evaluate its own surgical/wound prep pads. For more information, see MPCA hazardous waste fact sheet #4.61, Managing Towels, Wipes and Sorbents, at http://www.pca.state.mn.us/publications/w-hw4-61.pdf.</p>
Treatment in a container	<p>You may use products such as Chemgon™ and similar products to treat your hazardous waste in a container at the site where it is generated; however, all treatment must be performed in a closed container. You must report all waste treated on site as generated hazardous waste. You are responsible for verifying that the treated waste is actually non-hazardous.</p> <p>You may also use products such as Isolyser/SMS™ and similar products to treat your infectious waste (that does not contain sharps) in a container at your location without MPCA approval; however, you are responsible for verifying that the decontaminated waste is non-infectious. You may also treat infectious waste that does contain sharps; however, after treatment you must manage that waste as though it was still infectious and meet all corresponding requirements unless the system has been approved by the MPCA.</p>
Unsorted pharmaceuticals	<p>You may find it convenient to collect and co-mingle both product and waste pharmaceuticals in a common container for later sorting. If any pharmaceuticals are apparently, reasonably, or known to be a waste at the time they are placed in a common container, the contents of the entire container are also considered wastes until the wastes are sorted back out. Assume wastes that have not been evaluated are hazardous. Any container in which they are collected must meet all hazardous waste container requirements.</p> <p>Mixing listed hazardous waste with non-listed waste may result in the entire mixture becoming a listed hazardous waste. To ensure mixing does not occur before sorting, use containers or plastic bags. Assume pharmaceutical containers of solid tablets or similar materials are fully contained if the container is intact and fully closed. Placing any free liquid or otherwise uncontained apparently, reasonably, or known hazardous wastes into a container will render the entire contents of the container hazardous waste, regardless of sorting. Assume spiked IV bags or vials with pierced diaphragms containing free liquids to be uncontained unless individually shown to be leak-free. Snapped ampoules also are considered <i>uncontained</i>. For more information on hazardous waste container requirements, see MPCA hazardous waste fact sheet #1.04/1.05, Label and Store Hazardous Waste, at http://www.pca.state.mn.us/publications/w-hw1-04-05.pdf.</p>

Waste/Issue	Regulatory consensus
X-ray equipment	<p>Medical radiology (X-ray) equipment may commonly contain a high-voltage tube or magnetron or occasionally contain a radioactive source to generate the X-rays. In addition, nearly all modern radiology equipment contains electronic control systems.</p> <p>Radioactive sources: Manage under the radiation management regulations of Minnesota Department of Health (MDH). For more information, visit the MDH at http://www.health.state.mn.us/.</p> <p>Capacitors and transformers: High-voltage tubes or magnetrons are usually powered by capacitors or electrical transformers. Assume capacitors and transformers manufactured before 1979 contain polychlorinated biphenyls (PCBs), and will render the equipment a MN03 hazardous waste in Minnesota. For more information on identifying and managing PCBs, see MPCA hazardous waste fact sheet #4.48a, Identifying, Using, and Managing PCBs, at http://www.pca.state.mn.us/publications/w-hw4-48a.pdf.</p> <p>Electronic waste: Electronic control systems, indicated by keypads, display screens, and digital input or output ports, become electronic waste (E-waste) when radiology equipment is disposed of or disassembled. Manage E-waste under the requirements described in MPCA hazardous waste fact sheet #4.15, Managing Electronic Wastes, at http://www.pca.state.mn.us/publications/w-hw4-15.pdf.</p>
X-ray film & plates	<p>Film: Based on data provided by manufacturers and other environmental regulatory agencies, you may assume that X-ray film manufactured after 1976 is non-hazardous for silver, unless there is a specific reason to believe a particular film is hazardous. You are still encouraged to recycle all waste X-ray film.</p> <p>Check with your Metro county to determine whether it has specific management requirements for waste X-ray film. For more information, see MPCA hazardous waste fact sheet #4.46, Managing Photographic and X-ray Waste, at http://www.pca.state.mn.us/publications/w-hw4-46.pdf.</p> <p>Reusable plates: Many reusable X-ray plates, known as photostimulable phosphor (PSP) plates, used with computed radiography (CR) systems contain barium, and must be assumed to be D005 toxic hazardous waste when disposed of, unless you have evaluated your PSP plates and determined they are non-hazardous.</p>
X-ray shielding and packaging	<p>X-ray shielding, personal protective equipment (PPE), and film packaging commonly contain lead, either in foil or powder form. Lead metal sheets and foil are exempt from hazardous waste regulation if recycled as scrap metal. For more information on scrap metal, see MPCA hazardous waste fact sheet #4.27, Managing Scrap Metal, at http://www.pca.state.mn.us/publications/w-hw4-27.pdf.</p> <p>Glass, rubber, plastic and other materials impregnated with lead powder or lead compounds are not considered scrap metal and are fully regulated D008 toxic hazardous wastes when disposed of; however, you are still encouraged to recycle all lead-containing X-ray waste.</p>

Future issue reviews

The MPCA and Metro counties continue to research and develop consensus on health care related issues. If you have an environmental regulatory interpretation question related to health care, please contact your MPCA or Metro county hazardous waste staff. If your question has statewide relevance and is not addressed in existing guidance, it may be added to this fact sheet. See *More information* for contact information.

More information

Guidance and requirements in this fact sheet were compiled from Minnesota Statutes, Chapters §115A and §116, and Minnesota Rules, Chapters 7035 and 7045, and incorporates regulatory interpretation decisions made by the MPCA on July 2, 2004; October 17, 2007; October 18, 2007; September 9, 2008; October 27, 2008; May 21, 2010; April 13, 2011; May 6, 2011; August 9, 2011; and January 25, 2012. Visit the Office of the Revisor of Statutes at <https://www.revisor.mn.gov/pubs> to review the Minnesota Statutes and Rules directly.

Your metropolitan county and the MPCA have staff available to answer waste management questions. For more information, contact your metropolitan county hazardous waste office or your nearest MPCA regional staff. The Minnesota Technical Assistance Program (MnTAP) has information to assist you to reduce your waste generation and costs.

Metro County Hazardous Waste Offices

Anoka	763-422-7093
Carver	952-361-1800
Dakota	952-891-7557
Hennepin	612-348-3777
Ramsey	651-266-1199
Scott.....	952-496-8475
Washington.....	651-430-6655
Websites	http://www.co.[county].mn.us

Metropolitan Council Environmental Services

Metro	651-602-1000
Website	http://www.metrocouncil.org/environment

Minnesota Technical Assistance Program

Toll free.....	1-800-247-0015
Metro	612-624-1300
Website	http://www.mntap.umn.edu

Minnesota Pollution Control Agency

Toll free (all offices).....	1-800-657-3864
Brainerd.....	218-828-2492
Detroit Lakes	218-847-1519
Duluth	218-723-4660
Mankato	507-389-5977
Marshall	507-537-7146
Rochester	507-285-7343
St. Paul	651-296-6300
Willmar	320-214-3786
Website	http://www.pca.state.mn.us

Small Business Environmental Assistance

Toll free	1-800-657-3938
Metro	651-282-6143
Website	http://www.pca.state.mn.us/sbeap/