Waste Management – Best Practices

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Agenda

- **Abbott Global Sustainability Report**
- **Sources of Instrument Waste**
- **Waste Handling and Disposal**
- **WHO Recommendations**
- **Waste Management in Developing Countries**

Abbott

At Abbott, sustainability is integrated into everything we do, around the world – delivering positive economic, social and environmental impact for the many people we serve.

Global Sustainability Report

Abbott is committed to minimizing our waste impacts throughout the entire life cycle of our products and packaging. We recognize two key areas of responsibility in reducing waste:

- Our operational waste, which includes waste that we directly generate
- Our extended-producer responsibility, which considers the environmental impacts associated with our products through their complete life cycle, including design, production, consumption and disposal

Company Statement

The content that will follow is general and that each facility is obliged to follow national or international guidelines for the management of biomedical waste.

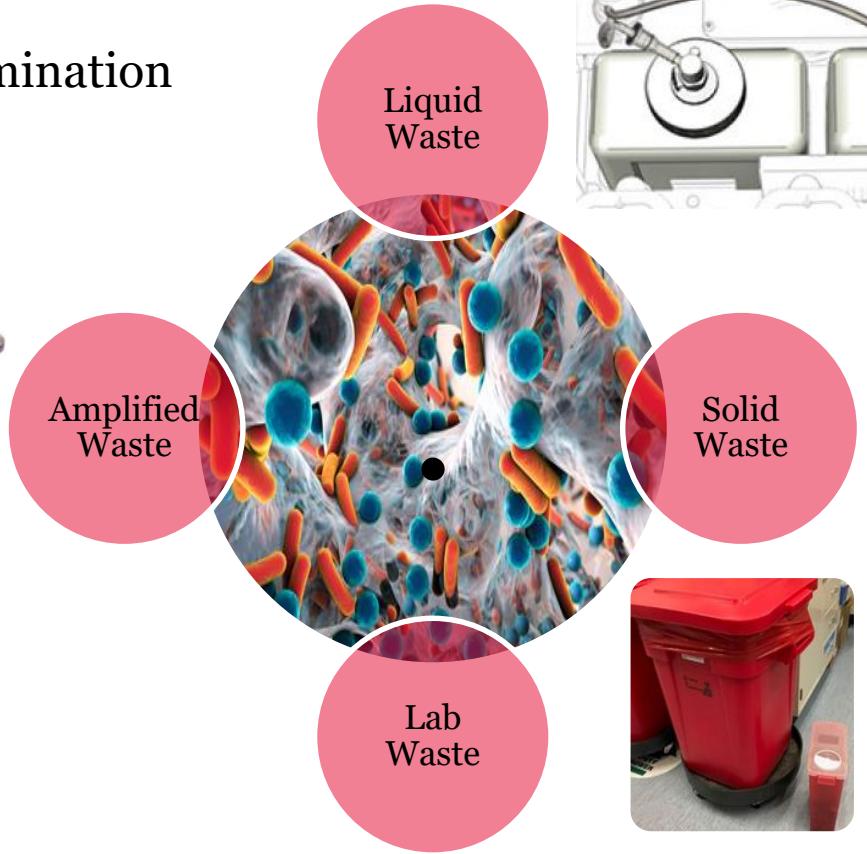
Material being presented is intended for November 2019 ASLM Waste Management session. Information is continuously updated and should not be used as reference after November 7th, 2019.

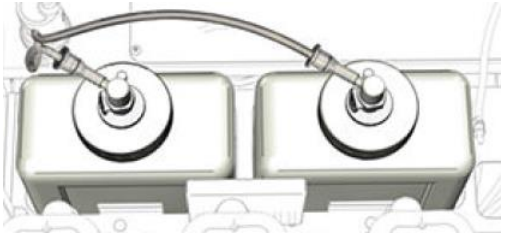
Sources of Instrument Waste

Top sources of molecular contamination are:

From Instrument:
Solid and liquid wastes (from containers)

From Lab:
Lab wastes such as specimen tubes and tips (from prospective containers)





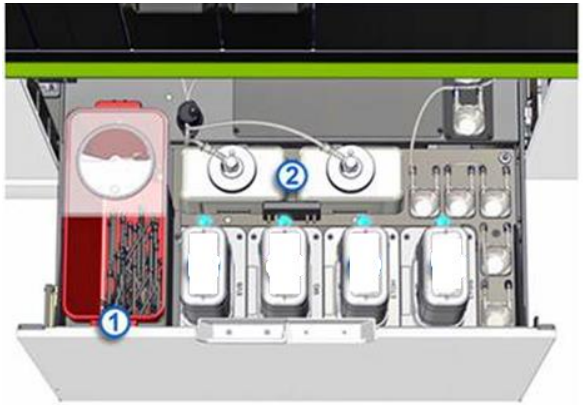
Sources of Instrument Waste continued

Figures shown to the right illustrate the storage area located below the instrument work surface:

Drawer holds:

- **Solid waste container** which collects used disposable tips (1)
  - The solid waste is considered Biohazardous

- **Liquid waste container** collects waste fluids (2)
  - Content includes reagents or samples dispensed through the liquid waste station.



Composition Information (SDS)

Reagent	CAS #	Substance Name	% Concentration
Abbott mSample Preparation System	593-84-0	Guanidine Thiocynate	28.3% - 55.6%
	9005-64-5	Polysorbate 20	10.00%
	1185-53-1	Tromethamine Hydrochchloride	1.58%
Lysis Solution	593-84-0	Guanidine Thiocynate	55.60%
	1185-53-1	Tromethamine Hydrochchloride	1.58%
Ethanol Solution	64-17-5	Ethanol	100.00%
Diluent Solution	2682-20-4	2-Methyl-4-isothiazolin-3-one	0.01%
Vapor Barrier Solution	NONE	NONE	NONE

Solid Waste

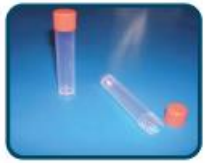
1. Tips

2. Deep Well Plates

3. PCR Plates

4. Reaction Vessels

5. Master Mix Tube / Cap



6. Empty Reagent Bottles

Liquid Waste

1. System Waste (waste generated from the instrument and collected in liquid waste container)

2. Unused Reagent Bottles

3. Remaining reagent solution from instrument

Waste Handling and Disposal

Decontaminate and dispose of all specimens, reagents, reaction plates and other potentially contaminated materials in accordance with local, state, and federal regulations.

All used and contaminated materials should be handled and disposed of in a manner that minimizes the chance of potential RNA/DNA contamination of the work area.

Oxidizing agents such as sodium hypochlorite should not be mixed with any reagents or liquid waste of the instrument. This can generate toxic gases from the mixtures. Pressures may build up in the closed container of the mixtures.

Waste Handling and Disposal Continued

Autoclaving is not recommended for materials contaminated with products that contain chemicals that are hazardous by inhalation at low concentrations.

Autoclaving the sealed reaction wells will not degrade the amplified product and may contribute to the release of the amplified product by opening the sealed wells. The laboratory area can become contaminated with amplified product if the waste materials are not carefully handled and contained.

Used PCR plates are to be placed in a sealed plastic bag before disposal.

It is the responsibility of each facility to characterize its waste stream to ensure the waste is disposed of in accordance to applicable waste regulations.

What if there are no national regulations?

Refer to brief overview of WHO Handbook on **“Safe management of wastes from healthcare facilities”** is provided including planning, budgeting and training.

WHO Recommendations

Hazardous Waste:

- Should **not** be discharged into wastewater but collected separately and treated as chemical health-care waste. (pg.130)
- Must be labeled with the type of waste and the name of the major chemicals, with any necessary hazard labels attached to corrosive, flammable, explosive or toxic chemicals and stored in strong leak-proof containers. (pg. 82)

Sharps Waste:

To be stored in a puncture-proof container (pg. 82)

Infectious Biohazardous Waste:

To be stored in strong, leak-proof plastic bag, or container (pg. 79)

Note: page numbers referenced are from WHO Handbook on "Safe management of wastes from healthcare facilities" 2nd edition

Waste Management in Developing Countries

It is advised that entities consult with local authorities to establish independent guidelines pertaining to handling and disposal of waste.

Uganda
National Environment (Waste Management) Regulations, S.I 153-2 includes list of licensed waste handlers which transport, process, store and dispose waste.

Kenya
Waste Management Regulations, 2006 by Republic of Kenya lists requirements pertaining to the handling and disposal of waste.

Uganda: https://nema.go.ug/sites/all/themes/nema/docs/EDITED(2)%20LICENSED%20WASTE%20HANDLERS%20IN%20UGANDA.pdf
Kenya: http://www.nema.go.ke/images/Docs/Regulations/Waste%20Management%20Regulations-1.pdf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