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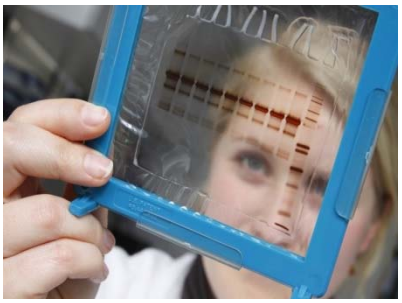
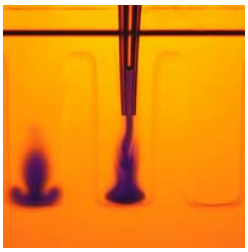
EHS FACT SHEET
ELECTROPHORESIS GEL AND SOLUTIONS DISPOSAL



Electrophoresis gels and solutions are commonly used in Ohio State University (OSU) laboratories for the identification of DNA and proteins through the process of electrophoresis. This electrophoresis process utilizes an organic fluorescence dye or an inorganic stain to stain the nucleic acids or proteins in a gel. These gels are typically agarose-based or polyacrylamide-based.

There are a number of different protocols and dyes used in the preparation and use of electrophoresis gels. Gels can be cast with or without dyes. The nucleic acids/proteins can be stained by adding the dye to the sample before electrophoresis, the dye can be added to the running buffer before electrophoresis, or the gel can be placed in a dye solution after electrophoresis has been completed.

Waste by-products generated during the DNA identification process must be managed and disposed in a manner to protect public health and the environment. In general, chemical waste generated in a laboratory setting should never be poured down a drain or thrown in the trash. This fact sheet is intended to assist OSU laboratories in the proper management of waste generated in laboratories using electrophoresis.



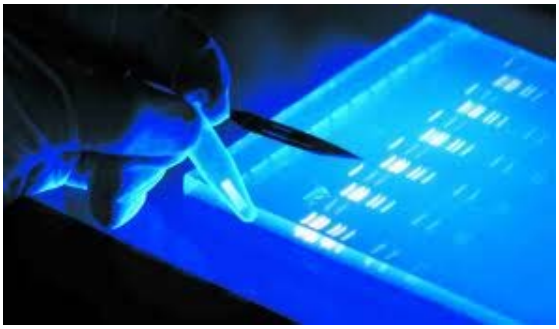
Types of Electrophoresis Dyes
Mutagenic Dyes
Examples of mutagenic dyes include but are not limited to: Ethidium Bromide, Propidium Iodide, Acridine Orange, SYBR® Green I, SYBR® Green II, SYBR® Gold and GelStar.

Non-Mutagenic Dyes
Examples of Mutagenic dyes include SYBR® Safe, GelRed, GelGreen, and EvaGreen

Procedures
Gels and Lab Debris Contaminated with Mutagenic Dyes:
Gels and contaminated lab debris, PPE, pipets etc. (non-sharp) that have been cast or used with mutagenic dyes must be collected for disposal through OSU EHS. Materials must be collected in a sealed container, and the container labeled as to its contents. When the container is full, a waste service request should be made via EHS Online at: https://ehs.osu.edu/secure/apps/Default.aspx

Gels and Lab Debris contaminated with Non-Mutagenic Dyes
Gels and contaminated lab contaminated debris, PPE, pipets etc. (non-sharp) that have been cast with non-mutagenic dyes can be discarded in the general trash as long as they are absent of free liquids. All labels should be removed from containers.

Gels Containing Polyacrylamide
Although polymerized acrylamide is not regulated as a hazardous waste, polyacrylamide gels often contain un-polymerized acrylamide which is a toxic material that can produce a hazard when introduced to the environment. Polyacrylamide gels shall be disposed of through EHS and never discarded with general trash. It is acceptable to dispose of acrylamide gels with ethidium bromide gel waste.



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Waste Liquid Solutions:
Liquids including stock solutions and all spent buffer solutions containing both mutagenic and non-mutagenic dyes must be collected and disposed of through OSU EHS. Solutions should be containerized in 5 gallon poly containers with screw top lids, (carboys). Containers must be labeled with the contents when waste is first placed into the container utilizing a chemical waste label. Labels and containers can be provided by OSU EHS by submitting an online request at https://ehs.osu.edu/secure/apps/Default.aspx

Chemically Contaminated Sharps
Needles, razor blades (non-infectious) should be collected in a puncture resistant container (NOT RED) and labeled "Chemically Contaminated Sharps for Disposal". Once the container is full, a request should be submitted to EHS for removal and disposal at: https://ehs.osu.edu/secure/apps/Default.aspx

Gel Electrophoresis Utilizing Silver Containing Solutions
Any buffer solutions containing silver must be collected and disposed of through of through EHS regardless of whether or not the dyes are mutagenic.

Contaminated Glassware
Glassware contaminated with either mutagenic or non-mutagenic dyes should be collected and disposed in accordance with the OSU Glassware and sharps disposal procedure which can be found at: http://www.ehs.osu.edu/EnvAffairs/HazardousCW.aspx

Electrophoresis Gel and Solution Disposal Summary Table

	Mutagenic Dyes (Examples: Ethidium Bromide, Propidium Iodide, Acridine Orange, SYBR Green I, SYBR Green II, SYBR Gold, GelStar)	**Non Mutagenic Dyes** (Examples: SYBR® Safe, GelRed, GelGreen, EvaGreen)
Gels, contaminated solids*, Contaminated PPE	**Collect:** Gels and contaminated solids, PPE, non-sharps etc. should be collected in a puncture resistant container provided by EHS. **Label:** Provide specific description of container contents. Request labels from EHS if needed. **Dispose:** Dispose of waste through EHS see procedures below for details.	Materials may be discarded in general trash as long as they are absent of free liquids. Labels should be removed.
Waste Liquids/Buffer Solutions	**Collect:** Dyes and liquids should be containerized in appropriate containers **Label:** Provide specific description of container contents. Request labels from EHS if needed. **Dispose:** Enter an EHS waste service request at https://ehs.osu.edu/secure/apps/Default.aspx	
Chemically Contaminated Sharps	**Collect:** Collect chemically contaminated sharps - needles, razors blades (non-infectious in puncture resistant containers. **Label:** Puncture resistant container should be labeled "Chemically Contaminated Sharps for Disposal". The container should be kept closed at all times. **Dispose:** When the container is full enter a waste service request via EHS Online at: https://ehs.osu.edu/secure/apps/Default.aspx	