

PATHOGEN SAFETY DATA SHEET

Enterohemorrhagic Escherichia coli

CHARACTERISTICS	
Morphology	Aerobic and motile aerobic gram-negative rod. Produce Vero and Shiga toxins.
Disease	Hemorrhagic colitis, intestinal disease accompanied by cramps and abdominal pain; initially watery, followed by bloody diarrhea; low grade fever; last about 8 days; 5-10% of hemorrhagic colitis victims may develop hemolytic uremic syndrome (HUS).
Zoonosis	Yes, by direct or indirect contact with infected animals, feces and contaminated food.

HEALTH HAZARDS	
Host Range	Humans and animals.
Modes of Transmission	Ingestion of contaminated food, fecal-oral transmission, and person-to-person transmission
Signs and Symptoms	Intestinal disease accompanied by cramps and abdominal pain, initially watery followed by bloody diarrhea, low grade fever
Infectious Dose	Appears to be low (10 organisms by ingestion).
Incubation Period	2-8 days

MEDICAL PRECAUTIONS/TREATMENT	
Prophylaxis	None available.
Vaccines	None available.
Treatment	Electrolyte fluid therapy. Antibiotics may be administered in very severe cases.
Surveillance	Monitor for symptoms, confirm bacteriologically, DNA probe to detect Verotoxins VT1 and VT2
MSU Requirements	Report any exposures

LABORATORY HAZARDS	
Laboratory Acquired Infections (LAIs)	4 reported cases since 1981
Sources	Contaminated food and feces. Cultures, frozen stocks, other samples described in IBC protocol.

SUPPLEMENTAL REFERENCES	
Canadian MSDS:	http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/index-eng.php
BMBL	https://www.cdc.gov/labs/BMBL.html
CDC	https://www.cdc.gov/ecoli/
NIH Guidelines	https://osp.od.nih.gov/wp-content/uploads/NIH_Guidelines.pdf

RISK GROUP & CONTAINMENT REQUIREMENTS	
Risk Group 2	Agents that are associated with human disease which is rarely serious and for which preventive or therapeutic interventions are often available.
BSL2	For all procedures involving suspected or known infectious specimen or cultures.
ABSL2	For all procedures utilizing infected animals.

SPILL PROCEDURES	
Small	Notify others working in the lab. Remove PPE and don new PPE. Cover area of the spill with absorbent material and add fresh 1:10 bleach:water. Allow 20 minutes (or as directed) of contact time. After 20 minutes, cleanup and dispose of materials.
Large	<ul style="list-style-type: none"> Immediately notify all personnel in the lab and clear all personnel from the area. Remove any contaminated PPE/clothing and leave the lab. Secure the area by locking doors, posting signage and guarding the area to keep people out of the space. For assistance, contact MSU's Biosafety Officer (406-994-6733) or Safety and Risk Management (406-994-2711).

EXPOSURE PROCEDURES	
Mucous membrane	Flush eyes, mouth, or nose for 5 minutes at eyewash station.
Other Exposures	Wash area with soap and water for 5 minutes.
Reporting	Immediately report incident to supervisor, complete a First Report of Injury form, and submit to Safety and Risk Management.
Medical Follow-up	During business hours: Bridger Occupational Health 3406 Laramie Drive Weekdays 8am -6pm. Weekends 9am-5pm After business hours: Bozeman Deaconess Hospital Emergency Room 915 Highland Blvd

VIABILITY	
Disinfection	Susceptible to 1:10 bleach:water, 70 % ethanol, and glutaraldehyde, accelerated hydrogen peroxide
Inactivation	Inactivated moist heat (121°C for 30 min) and dry heat (1 hour at 160-170 C).
Survival Outside Host	Can survive well in contaminated feces, soil and certain foods (i.e. hamburger meat).

PERSONAL PROTECTIVE EQUIPMENT (PPE)	
Minimum PPE Requirements	Lab coat, disposable gloves, safety glasses, closed toed shoes, long pants
Additional Precautions	Additional PPE may be required depending on lab specific SOPs and IBC Protocol.