

PATHOGEN SAFETY DATA SHEET

Clostridium difficile

CHARACTERISTICS	
Morphology	A gram positive rod that is anaerobic, motile, capable of producing subterminal spores, and produces a cytotoxin and enterotoxin.
Disease	Antibiotic-associated diarrhea, pseudomembranous colitis (PMC).
Zoonosis	Potential zoonosis. Moreover, contaminated food can cause infection.

HEALTH HAZARDS	
Host Range	Humans and animals.
Modes of Transmission	Fecal-oral contact; evidence for transmission via fomites and hands exists.
Signs and Symptoms	Mild or moderate diarrhea, pseudomembranous colitis, may be associated with the passage of mucus or occult blood in stool, fever, cramping abdominal discomfort and peripheral leukocytosis are common but found in fewer than half the patients.
Infectious Dose	unknown
Incubation Period	unknown

MEDICAL PRECAUTIONS/TREATMENT	
Prophylaxis	None available.
Vaccines	None available.
Treatment	Antibiotic therapy. Oral therapy with metronidazole or vancomycin.
Surveillance	Diagnosed by PCR. Monitor for symptoms (loose stool). Recover C. difficile organisms and/or toxin from stool samples to confirm.
MSU Requirements	Report any exposures

LABORATORY HAZARDS	
Laboratory Acquired Infections (LAIs)	One reported case of an LAI from C. difficile.
Sources	Clinical specimens (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/cdiff/index.html
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 30 minutes (or as directed) of contact time. After 30 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	Spores are susceptible to 1:10 bleach:water for 20 minutes; susceptible to >2% glutaraldehyde with minimum of 20 minutes contact time, accelerated hydrogen peroxide
Inactivation	Inactivated by moist heat (121°C for 30 minutes)
Survival Outside Host	Can survive in soil, meat, and vegetables. Spores can survive for long periods outside of host.

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.