

PATHOGEN SAFETY DATA SHEET

Clostridium perfringens

CHARACTERISTICS	
Morphology	A gram-positive rod that is anaerobic, motile, capable of producing spores, and produces many different toxins.
Disease	Food poisoning (Type C), Gas Gangrene, cellulitis, enteritis necroticans and CNS diseases.
Zoonosis	Yes; Type A foodborne disease and Type C infections can be transmitted from animals to humans.

HEALTH HAZARDS	
Host Range	Humans and animals.
Modes of Transmission	Food-borne illness acquired by ingestion.
Signs and Symptoms	Food poisoning: Watery diarrhea, nausea, and abdominal pain. Gas Gangrene; breakdown of muscle tissue. Severe pain, edema, tenderness, and pallor, followed by discoloration and hemorrhagic bullae, and production of gas at the site of wound.
Infectious Dose	Food poisoning: 100 million
Incubation Period	Food poisoning: 8 to 24 hours Gas Gangrene: 1 to 4 days

MEDICAL PRECAUTIONS/TREATMENT	
Prophylaxis	None available.
Vaccines	None available.
Treatment	Food poisoning: Self-limiting disease. Therapy is mainly supportive. Gas Gangrene: removal of all devitalized tissue in conjunction with antibiotic therapy with a combination of penicillin and clindamycin or tetracycline.
Surveillance	Clinical symptoms.
MSU Requirements	Report any exposures

LABORATORY HAZARDS	
Laboratory Acquired Infections (LAIs)	None have been reported to date.
Sources	Feces, food, blood, bowel contents or tissue. 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/foodsafety/diseases/clostridium-perfringens.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 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	Spores are fairly resistant; moderate susceptibility to 1:10 bleach:water; susceptible to high level disinfectants (>2 % glutaraldehyde) with prolonged contact time, accelerated hydrogen peroxide
Inactivation	Spores are inactivated by moist heat (15 minutes at 121 C) and dry heat (1 hour at 160-170 C).
Survival Outside Host	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.