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Français	Contact Us	Help	Search	Canada Site
Home	Centres & Labs	Publications	Guidelines	A-Z Index
Child Health	Adult Health	Seniors Health	Surveillance	Health Canada

Home : Material Safety Data Sheets - Infectious Substances :

Office of  
Laboratory  
Security

MSDS

**MATERIAL SAFETY DATA SHEET - INFECTIOUS SUBSTANCES****SECTION I - INFECTIOUS AGENT****NAME:** *Clostridium perfringens***SYNONYM OR CROSS REFERENCE:** *C. welchii*, enteritis necroticans**CHARACTERISTICS :** Gram positive fat short rods, non-motile, anaerobic spores seldom observed, type A2 produces an enterotoxin**SECTION II - HEALTH HAZARD****PATHOGENICITY:** Food poisoning (Type A); intestinal disorder characterized by sudden onset of colic followed by diarrhea, nausea, but vomiting and fever is usually absent; mild, short in duration and rarely fatal; type C strains cause necrotizing enteritis; Type A strains can also cause wound contamination; traumatic or nontraumatic myonecrosis (gas gangrene); clostridial cellulitis, intra-abdominal sepsis, gangrenous cholecystitis**EPIDEMIOLOGY:** Widespread and relatively frequent in countries with cooking practices that favour multiplication of *Clostridia***HOST RANGE:** Humans and animals**INFECTIOUS DOSE:** 10<sup>5</sup> organisms/g food**MODE OF TRANSMISSION:** Ingestion of food contaminated by soil or feces, held under conditions which permit multiplication of the organism (inadequately cooked or reheated meats)**INCUBATION PERIOD:** From 6-24 hours; usually 10-12 hours**COMMUNICABILITY:** Not directly transmitted from person to person**SECTION III - DISSEMINATION****RESERVOIR:** Soil; gastrointestinal tract of healthy persons and animals (cattle, pigs, poultry and fish)**ZOONOSIS:** None**VECTORS:** None**SECTION IV - VIABILITY****DRUG SUSCEPTIBILITY:** Penicillin is generally the first line choice.

**DRUG RESISTANCE:** Resistance to penicillin, tetracycline, erythromycin, chloramphenicol, metronidazole and clindamycin has been reported.

**SUSCEPTIBILITY TO DISINFECTANTS:** Sporeformers are fairly resistant; moderate susceptibility to 1% sodium hypochlorite; susceptible to high level disinfectants (glutaraldehyde) with prolonged contact time

**PHYSICAL INACTIVATION:** Sporeformers are fairly resistant to heat; spores survive normal cooking temperatures but are destroyed by moist heat (121°C for at least 15 min)

**SURVIVAL OUTSIDE HOST:** Meat - 330 days; spores survive for long periods in soil

## SECTION V - MEDICAL

**SURVEILLANCE:** Monitor for symptoms; detection of organism and/or enterotoxin in stool

**FIRST AID/TREATMENT:** Fluid replacement and alleviate cramping abdominal pain

**IMMUNIZATION:** None available

**PROPHYLAXIS:** None available

## SECTION VI - LABORATORY HAZARDS

**LABORATORY-ACQUIRED INFECTIONS:** Rarely reported; 6 cases for *Clostridium* spp.

**SOURCES/SPECIMENS:** Clinical specimens - wound exudates, feces

**PRIMARY HAZARDS:** Accidental parenteral inoculation, ingestion

**SPECIAL HAZARDS:** None

## SECTION VII - RECOMMENDED PRECAUTIONS

**CONTAINMENT REQUIREMENTS:** Biosafety level 2 practices, containment equipment and facilities for activities involving clinical specimens and cultures

**PROTECTIVE CLOTHING:** Laboratory coat; gloves when direct contact with infectious materials is unavoidable

**OTHER PRECAUTIONS:** Good personal hygiene and frequent handwashing

## SECTION VIII - HANDLING INFORMATION

**SPILLS:** Allow aerosols to settle; wear protective clothing; gently cover spill with paper towels and apply a suitable disinfectant (high level, or 1% sodium hypochlorite), starting at perimeter and working towards the centre; allow sufficient contact time before clean up

**DISPOSAL:** Decontaminate before disposal; steam sterilization, chemical disinfection, incineration

**STORAGE:** In sealed containers that are appropriately labelled

### **SECTION IX - MISCELLANEOUS INFORMATION**

**Date prepared:** January 2000, revised July 2003

**Prepared by:** Office of Laboratory Security, PHAC

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[\[Material Safety Data Sheets - Index\]](#)

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[Important Notices](#)