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Office of  
Laboratory  
Security

MSDS

**MATERIAL SAFETY DATA SHEET - INFECTIOUS SUBSTANCES****SECTION I - INFECTIOUS AGENT****NAME:** *Cryptosporidium parvum***SYNONYM OR CROSS REFERENCE:** Cryptosporidiosis**CHARACTERISTICS:** Coccidian protozoa; sporozoa; sexual and asexual cycles in a single host; sporozoites, trophozoites and merozoites all attach to epithelial cells (generally intestinal cells); mature oocyst contains 4 thin, flat motile sporozoites (2-4 by 6-8µm)**SECTION II - HEALTH HAZARD****PATHOGENICITY:** Characterized by profuse, watery diarrhea, cramping, abdominal pains, weight loss, anorexia, flatulence and malaise; nausea, vomiting, fever and myalgias may also be present; symptoms are self-limiting in healthy individuals; immunocompromised patients including AIDS patients may experience prolonged symptoms with increasing severity**EPIDEMIOLOGY:** Worldwide; rate of infection ranges from 1 to 4.5% in developed countries and from 3 to 20% in developing countries; higher infection rates reported in AIDS patients (3-20% in US, 50-60% in Africa and Haiti); frequent outbreaks in daycare centres**HOST RANGE:** Vertebrates including humans, poultry, fish, reptile, small and large mammals**INFECTIOUS DOSE:** ID<sub>50</sub>=132 organisms (N Engl J Med 1995; 332:855-9)**MODE OF TRANSMISSION:** Fecal-oral route (person-to-person, animal-to-person, food and waterborne transmission)**INCUBATION PERIOD:** 1 to 12 days; average is 7 days**COMMUNICABILITY:** Oocysts, the infectious stage, excreted in stools from onset of symptoms to several weeks after symptoms resolve**SECTION III - DISSEMINATION****RESERVOIR:** Humans, cattle and other domestic animals**ZOONOSIS:** Yes - acquired through contact with contaminated animal fecal matter, particularly diarrhea**VECTORS:** None

## SECTION IV - VIABILITY

**DRUG SUSCEPTIBILITY:** No effective therapeutic agent available; cyclosporine inhibits *Cryptosporidium* growth *in vitro*

**SUSCEPTIBILITY TO DISINFECTANTS:** Resistant to most disinfectants including 3% hypochlorite, iodophors, 5% formaldehyde; prolonged treatment (18 hours) with 5% ammonia, 10% formol saline (formaldehyde plus sodium chloride) or 3% hydrogen peroxide reduces infectivity

**PHYSICAL INACTIVATION:** Heating at 65°C for 30 minutes reduces infectivity

**SURVIVAL OUTSIDE HOST:** Oocysts may survive for 2 to 6 months in a moist environment

## SECTION V - MEDICAL

**SURVEILLANCE:** Monitor for symptoms; confirm by microscopic examination of specimens, identification of oocysts in fecal smears

**FIRST AID/TREATMENT:** Administer supportive therapy and rehydration in normal individuals; spiramycin may decrease diarrheal symptoms in early infections; paromomycin has been effective in AIDS patients

**IMMUNIZATION:** None available

**PROPHYLAXIS:** None available

## SECTION VI - LABORATORY HAZARDS

**LABORATORY-ACQUIRED INFECTIONS:** One case was reported in 1983 due to accidental inoculation; although not documented, infections are thought to occur regularly in all laboratories working with this organism (BMBL, 4<sup>th</sup> ed., 1999)

**SOURCES/SPECIMENS:** Feces, intestinal biopsy sections

**PRIMARY HAZARDS:** Ingestion; accidental parenteral inoculation; airborne transmission is also possible

**SPECIAL HAZARDS:** Naturally and experimentally infected animals pose a risk to laboratory and animal care personnel

## SECTION VII - RECOMMENDED PRECAUTIONS

**CONTAINMENT REQUIREMENTS:** Biosafety level 2 practices, containment equipment and facilities for all activities involving known or potentially infectious materials

**PROTECTIVE CLOTHING:** Laboratory coat; gloves when skin contact with infectious materials is unavoidable and when working with animals

**OTHER PRECAUTIONS:** Maintain good personal hygiene and frequent handwashing

## SECTION VIII - HANDLING INFORMATION

**SPILLS:** Allow aerosols to settle; wearing protective clothing, gently cover spill with absorbent paper towel and apply 10% formol saline or 5 % ammonia, starting at the perimeter and working towards the centre; allow sufficient time (approximately 20 hours) before clean up

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

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

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

**Date prepared:** August 2002

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

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