

# FREE SAFETY DATA SHEET INDEX

## Giardia lamblia

### MATERIAL SAFETY DATA SHEET - INFECTIOUS SUBSTANCES

#### SECTION I - INFECTIOUS AGENT

NAME: Giardia lamblia

SYNONYM OR CROSS REFERENCE: G. intestinalis, G. duodenalis, giardiasis, giardia enteritis, Lambliasis, lamblia intestinalis, "beaver fever"

CHARACTERISTICS: Single celled flagellated protozoa, trophozoite (9-21  $\mu\text{m}$  long, 5-15  $\mu\text{m}$  wide and 2-4  $\mu\text{m}$  thick), "tear drop" shape, contains 2 nuclei at anterior end and 5 flagella with tumbling motility; cyst form develops in the colon (13  $\mu\text{m}$  long, oval shape and 2 nuclei)

#### SECTION II - HEALTH HAZARD

PATHOGENICITY: Varies from asymptomatic in most individuals to a sudden onset of diarrhea with foul-smelling, greasy-looking stool that lacks mucous and blood; associated with abdominal cramps, bloating, fatigue and weight loss; restricted to upper small intestine with no invasion; normally illness lasts 1 - 2 weeks; chronic infections can last months to years

EPIDEMIOLOGY: Worldwide; prevalent in areas with poor sanitation;



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outbreaks more common in children than in adults; waterborne outbreaks are common where unfiltered waters are routinely contaminated by human and animal feces; daycare centres and cause of travellers diarrhea; most frequent cause of non-bacterial diarrhea in North America (25 % of gastrointestinal disease)

**HOST RANGE:** Humans; wild (beavers and bears) and domestic animals (dogs and cats)

**INFECTIOUS DOSE:** Less than 10 cysts when given orally, may even be as low as 1 cyst

**MODE OF TRANSMISSION:** Person-to-person, faecal-oral route is most important (hand to mouth transfer of cysts); infected food handlers; one person can pass 10<sup>6</sup> cysts each day; ingestion of fecally-contaminated water and food are also mechanisms for transmission, found in soil and on surfaces; anal intercourse also facilitates transmission

**INCUBATION PERIOD:** From 3 - 25 days, usually 7 - 10 days

**COMMUNICABILITY:** Cysts are shed during the entire period of infection, often months

### SECTION III - DISSEMINATION

**RESERVOIR:** Humans, wild and domestic animals

**ZOONOSIS:** Beaver considered zoonotic reservoir for water-borne infection in headwaters of many cold water streams

**VECTORS:** None

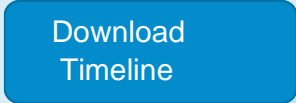
### SECTION IV - VIABILITY

**DRUG SUSCEPTIBILITY:** Sensitive to quinacrine hydrochloride, metronidazole, tinidazole, albendazole and furazolidone


**SUSCEPTIBILITY TO DISINFECTANTS:** Susceptible to 1% sodium hypochlorite (chlorine in drinking water not sufficient, especially if water is cold), 2% glutaraldehyde

**PHYSICAL INACTIVATION:** Boiling for minimum of 1 minute


**SURVIVAL OUTSIDE HOST:** Cysts remains infectious for prolonged periods in the environment, cysts are resistance to adverse environmental conditions



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## SECTION V - MEDICAL

**SURVEILLANCE:** Monitor for symptoms; confirm by microscopic demonstration of trophozoite and cysts in feces, stained preparations or unstained wet mounts; ELISA

**FIRST AID/TREATMENT:** Administer appropriate drug therapy

**IMMUNIZATION:** None available

**PROPHYLAXIS:** None available

## SECTION VI - LABORATORY HAZARDS

**LABORATORY-ACQUIRED INFECTIONS:** Two cases were reported up to 1987

**SOURCES/SPECIMENS:** Feces, duodenal secretions

**PRIMARY HAZARDS:** Ingestion

**SPECIAL HAZARDS:** None

## SECTION VII - RECOMMENDED PRECAUTIONS

**CONTAINMENT REQUIREMENTS:** Biosafety level 2 practices and containment facilities are recommended for activities with infective stages of mammalian *Giardia* spp. and infectious body fluids and tissues

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

**OTHER PRECAUTIONS:** Good personal hygienic practices - hand washing before handling food and before eating

## SECTION VIII - HANDLING INFORMATION

**SPILLS:** Allow aerosols to settle; wearing protective clothing gently cover the spill with absorbent paper towel and apply 1% sodium hypochlorite starting at the perimeter and working towards the center; allow sufficient contact time (30 min) before clean up

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

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

## SECTION IX - MISCELLANEOUS INFORMATION

Date prepared: April, 2001

Prepared by: Office of Laboratory Security, PHAC

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