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Office of  
Laboratory  
Security

MSDS

**MATERIAL SAFETY DATA SHEET - INFECTIOUS SUBSTANCES****SECTION I - INFECTIOUS AGENT****NAME:** *Legionella pneumophila***SYNONYM OR CROSS REFERENCE:** Legionnaires' disease, Legionellosis, Legionnaires' pneumonia, Pontiac fever**CHARACTERISTICS:** Gram-negative rod, poorly stained, aerobic, difficult to grow *in vitro*, serogroups 1-18**SECTION II - HEALTH HAZARD****PATHOGENICITY:** An acute pneumonitis associated with anorexia, malaise, myalgia, headache, fever and chills, nonproductive cough, abdominal pain and diarrhea; case fatality rate of 39-50% in hospitalized cases; Pontiac fever - not associated with pneumonia, recovery within 5 days**EPIDEMIOLOGY:** First documented outbreak in 1957 in US; identified in North America, Africa, Australia and Europe; sporadic cases and outbreaks more common in summer and autumn; causes 2-15% of all community-acquired pneumonias requiring hospitalization; legionellosis attack rate - 0.1-5%, Pontiac fever rate -95%**HOST RANGE:** Humans; experimental infection in guinea pigs and embryonated chicken eggs; challenged rabbits develop antibodies but not clinical disease; mice are refractory to parenteral exposure**INFECTIOUS DOSE:** Not known**MODE OF TRANSMISSION:** Epidemiologic evidence supports aerosol transmission; other modes are possible including aspiration of water**INCUBATION PERIOD:** Legionnaires' disease - 2-10 days, most often 5-6 days; Pontiac fever - 5-66 hours, most often 24-48 hours**COMMUNICABILITY:** Person-to-person transmission has not been documented; animal to animal transmission shown not to occur in a variety of experimentally infected mammalian and avian species**SECTION III - DISSEMINATION****RESERVOIR:** Aqueous - hot water systems, air-conditioning cooling towers, evaporative condensers, respiratory therapy devices, hot and cold water taps, showers, creeks, ponds; soil has been suspected**ZOONOSIS:** None

**VECTORS:** None

## SECTION IV - VIABILITY

**DRUG SUSCEPTIBILITY:** Sensitive to erythromycin and rifampin, ciprofloxacin;

**DRUG RESISTANCE:** Resistant to penicillin, cephalosporins, and aminoglycosides

**SUSCEPTIBILITY TO DISINFECTANTS:** Susceptible to many disinfectants - 1% sodium hypochlorite, 70% ethanol, glutaraldehyde, formaldehyde

**PHYSICAL INACTIVATION:** Susceptible to moist heat (121° C for at least 15 min) and dry heat (160-170° C for at least 1 hour)

**SURVIVAL OUTSIDE HOST:** Survives for months in tap or distilled water

## SECTION V - MEDICAL

**SURVEILLANCE:** Monitor for symptoms; confirm by isolation of organism for respiratory samples; rise in IFA titre

**FIRST AID/TREATMENT:** Hypoxic patients should receive oxygen; fluid replacement; antibiotic therapy

**IMMUNIZATION:** None

**PROPHYLAXIS:** Antibiotic prophylaxis

## SECTION VI - LABORATORY HAZARDS

**LABORATORY-ACQUIRED INFECTIONS:** One documented case due to aerosol exposure during animal challenge studies

**SOURCES/SPECIMENS:** Pleural fluids, tissue, sputum, environmental sources (cooling tower water)

**PRIMARY HAZARDS:** Generation of aerosols during the manipulation of culture or other concentrations of infectious materials (eg. infected yolk sacs and tissues)

**SPECIAL HAZARDS:** When working with respiratory cultures, *Francisella tularensis* can mimic the growth requirements of Legionella

## SECTION VII - RECOMMENDED PRECAUTIONS

**CONTAINMENT REQUIREMENTS:** Biosafety level 2 practices, containment equipment and facilities for all activities involving the known or potentially infectious clinical materials or cultures and the housing of infected animals

**PROTECTIVE CLOTHING:** Laboratory coat; gloves when direct contact with infectious materials is unavoidable; gloves and gown for work in biosafety cabinet

**OTHER PRECAUTIONS:** Primary containment devices and equipment (biological safety cabinets, centrifuge safety cups) should be used for activities

likely to generate potentially infectious aerosols

### SECTION VIII - HANDLING INFORMATION

**SPILLS:** Allow aerosols to settle; wear protective clothing; gently cover spill with paper towels and apply 1% sodium hypochlorite, starting at perimeter and working towards the centre; allow sufficient contact time (30 min)

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

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

### SECTION IX - MISCELLANEOUS INFORMATION

**Date prepared:** March, 2001

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

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