MONTANA STATE UNIVERSITY | Office of Research Compliance

PATHOGEN SAFETY DATA SHEET

Streptococcus pyogenes

CHARACTERISTICS	
Morphology	Aerobic, gram-positive, non-motile, non-sporing cocci, extracellular bacterium. It has a β-hemolytic growth pattern on blood agar
Disease	Group A (β-hemolytic) streptocci (GAS), streptococcal sore throat, strep throat, pharyngitis, scarlet fever, impetigo, erysipelas, puerperal fever, necrotizing fasciitis, toxic shock syndrome, septicaemia, acute rheumatic fever, acute post-streptococcal glomerulonephritis, gas gangrene
Zoonosis	Cows infected by humans are intermediate hosts and can pass the bacterium in their milk, which, if consumed unpasteurized, can infect other humans

HEALTH HAZARDS	
Host Range	Humans are primary reservoir for this bacterium, although cattle can also act as a reservoir
Modes of Transmission	Transmission via respiratory droplets, hand contact with nasal discharge and skin contact with impetigo lesions
Signs and Symptoms	Respiratory and gastrointestinal illness
Infectious Dose	Unknown
Incubation Period	Generally 1-3 days

MEDICAL PRECAUTIONS/TREATMENT	
Prophylaxis	Administering penicillin to carriers has been shown to reduce the number of people infected during an outbreak of streptococcal sore throat
Vaccines	None.
Treatment	Penicillin is used for respiratory tract infections (pharyngitis) and macrolides or lincosamides are used if there are allergies. Clindamycin may be used in cases of necrotizing fasciitis and surgical debridement of the affected area is necessary
Surveillance	Monitor for symptoms of infection.
MSU Requirements	Report any exposures

LABORATORY HAZARDS	
Laboratory Acquired Infections (LAIs)	78 documented cases since 1999
Sources	Respiratory specimens, skin lesions, blood, sputum and wound exudates. 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/groupastrep/diseases-hcp/index.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	• 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	1% sodium hypochlorite, 4% formaldehyde, 2% glutaraldehyde, 70% ethanol, 70% propanol, 2% peracetic acid, 3-6% hydrogen peroxide and 0.16% iodine
Inactivation	Inactivated by moist heat (15 minutes at 121° C) and dry heat (1 hour at 170° C).
Survival Outside Host	The bacterium can survive on a dry surface for 3 days to 6.5 months. It has been found to survive in ice cream (18 days), raw and pasteurized milk at 15-37 ºC (96 hrs), room temperature butter (48 hrs), and neutralized butter (12-17 days). GAS has been found to last several days in cold salads at room temperature

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.