MONTANA STATE UNIVERSITY | Office of Research Compliance

PATHOGEN SAFETY DATA SHEET

Staphylococcus aureus

CHARACTERISTICS	
Morphology	Gram-positive cocci, usually occurs in clusters, nonspore forming, non-motile, coagulase positive, facultative anaerobes.
Disease	Toxic shock syndrome, food poisoning, intoxication, impetigo.
Zoonosis	Yes, indirect and direct contact with infected animals, especially cows.

HEALTH HAZARDS	
Host Range	Humans and Animals.
Modes of Transmission	Ingestion of food containing enterotoxins, contact with nasal carriers, contact with draining lesions or purulent discharges, also spread by person-to-person contact; Indirectly by contact with fomites, Indirectly or directly by contact with infected animals.
Signs and Symptoms	Accidental ingestion: Violent onset of severe nausea, cramps, vomiting, and diarrhea if preformed enterotoxin is present. Surface infections: Impetigo, follicutis, abscesses, boils, infected lacerations. Systemic infections: onset of fever, headache, myalgia, can progress to endocarditis, meningitis, septic arthritis, pneumonia, osteomyelitis, sepsis.
Infectious Dose	Virulence varies for different strains.
Incubation Period	30 minutes to 8 hours when consuming contaminated food with enterotoxin. Otherwise, typically 4 to 10 days. Disease may not occur until several months after colonization of mucosal surfaces.

MEDICAL PRECAUTIONS/TREATMENT	
Prophylaxis	Hand-hygiene; Elimination of nasal carriage by using topical mupirocin. Mupirocin also eliminates transient hand carriage by eliminating the mucosal reservoir.
Vaccines	None available
Treatment	Incision and drainage for localized skin infections; antibiotic therapy for severe infections; Many strains resistant to antibiotics; Sensitivity must be determined for each strain.
Surveillance	Monitor for signs of food poisoning when ingestion occurs. Monitor for skin inflammation; isolation of organism from wound, blood, CSF or urine.
MSU Requirements	Report any exposures

LABORATORY HAZARDS	
Laboratory Acquired Infections (LAIs)	29 reported cases up to 1973 with 1 death. Most common cause of laboratory infection was accidental self-exposure via the mucous membranes by touching contaminated hands to face or eyes.
Sources	Contaminated food, blood, abscesses, lesion exudates, CFS, respiratory specimen, feces, and urine. 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/hai/organisms/staph.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	Susceptible to 1:10 bleach:water, 70 % ethanol and 2 % gluteraldehyde, chlorohexadine, formaldehyde, and 0.25 % benzalkonium chloride.
Inactivation	Inactivated by moist heat (15 minutes at 121°C) and dry heat (1 hour at 160-170° C).
Survival Outside Host	Carcass and organs – 42 days; Skin – 30 minutes to 38 days; meat products – 60 days; floor – less than 7 days; glassware – 46 hours; sunlight – 17 days; UV light – 7 hours.

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.