

PATHOGEN SAFETY DATA SHEET

Mycobacterium spp. (non-tuberculous) including M. ulcerans

CHARACTERISTICS	
Morphology	Aerobic, non-spore forming, non-motile, slightly curved or straight rods (0.2 to 0.6 µm by 1.0 to 10 µm) which may branch
Disease	Non-tuberculous mycobacteria (NTM) infections occur mainly in immunosuppressed individuals, although immunocompetent patients can also be affected. Non tuberculous mycobacteria cause many different diseases in humans.
Zoonosis	Yes for some species: M. marinum from pet fish, M. avium complex from swine, and from other domestic and wild animals

HEALTH HAZARDS	
Host Range	Humans, domestic and wild animals
Modes of Transmission	Nosocomial, direct contact with a contaminated environment
Signs and Symptoms	Cutaneous or skin infections
Infectious Dose	Unknown.
Incubation Period	unknown

MEDICAL PRECAUTIONS/TREATMENT	
Prophylaxis	None available.
Vaccines	None available.
Treatment	A combination of several antibiotics over long periods of time is recommended for treatment of NTM infections. The most important antibiotics used in antimycobacterial therapy include: rifampin, isoniazid, ethambutol, macrolides (clarithromycin, azithromycin), quinolones (ciprofloxacin, moxifloxacin, gatifloxacin), aminoglycosides (streptomycin, amikacin) and linezolid.
Surveillance	Monitor for symptoms. Diagnosis of NTM infection can be done via culture of clinical specimens, serotyping, and PCR.
MSU Requirements	Report any exposures

LABORATORY HAZARDS	
Laboratory Acquired Infections (LAIs)	40 cases of non pulmonary tuberculosis due to laboratory or autopsy room accidents have been reported.
Sources	NTM can be isolated from sputa, exudates from lesions, tissues, environmental samples (soil, water), and from wounds. 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	
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	<ul style="list-style-type: none"> 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 sodium hydroxide, chlorine dioxide, ethylene oxide, 0.35% peracetic acid, and orthophthalaldehyde. 70% ethanol can be used for surface disinfection. Some atypical mycobacteria such as M. marinum, M. smegmatis, and M. fortuitum are highly susceptible to 2% alkaline glutaraldehyde, whereas others such as M. gordonae, M. avium complex, M. xenopi, M. chelonae are resistant to it.
Inactivation	Inactivated by moist heat (15 minutes at 121°C) and dry heat (> 65 °C for at least 30 min) and by UV light
Survival Outside Host	Mycobacteria are able to survive for weeks to months on inanimate objects if protected from sunlight. NTM species are widely distributed in nature and have been found in natural water, tap water, soil, water used in showers and surgical solutions.

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.