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| **CHARACTERISTICS** |
| Morphology | Gram-negative, non-motile, small rod-shaped bacterium, often appearing as a "safety pin" shape. Colonies on blood agar are typically smooth, greyish, and 1-2 mm wide, with most strains exhibiting a faint β-haemolysis.  |
| Disease | In cattle, respiratory and systemic diseases, most notably bovine respiratory disease (BRD). |
| Zoonosis | Does not readily transfer from animals to humans. |

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| **HEALTH HAZARDS** |
| Host Range | Cattle, sheep and goats. |
| Modes of Transmission | Direct and indirect contact, primarily via the respiratory route. |
| Signs and Symptoms | Depression, fever, loss of appetite, nasal discharge, rapid and labored breathing, and coughing. |
| Infectious Dose | Unknown. |
| Incubation Period | 1-2 weeks. |

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| **MEDICAL PRECAUTIONS/TREATMENT** |
| Prophylaxis | None. |
| Vaccines | Yes, for cattle, sheep and goats. |
| Treatment | Oxytetracycline, florfenicol, ceftiofur, tylosin, tilmicosin, and tulathromycin. |
| Surveillance | Monitor for symptoms. |
| MSU Requirements | Report any exposures. |

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| **LABORATORY HAZARDS** |
| Laboratory Acquired Infections (LAIs)  | None reported. |
| Sources | Cultures, frozen stocks, other samples described in IBC protocol. |

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| **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. |

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| **VIABILITY** |
| Disinfection | 3% hydrogen peroxide, 70% ethanol |
| Inactivation | Inactivated by moist heat (60 minutes at 121oC) and dry heat (1 hour at 160-170oC). |
| Survival Outside Host | Varying periods, primarily in moist environments like soil and water, and in animal tissues. |

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| **SUPPLEMENTAL REFERENCES** |
| BMBL | <https://www.cdc.gov/labs/BMBL.html>  |
| NIH Guidelines | <https://osp.od.nih.gov/wp-content/uploads/NIH_Guidelines.pdf>  |

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| **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). |

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| **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](https://firstreportinjury.mus.edu/) form, and submit to Safety and Risk Management. |
| Medical Follow-up | **During business hours:**Bridger Occupational Health 3400 Laramie Drive Weekdays 8am -6pm. Weekends 9am-5pm406-577-7674**After business hours:**Bozeman Deaconess Hospital Emergency Room915 Highland Blvd |

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| **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. |