



The University of Texas at Tyler  
Environmental Health and Safety  
**BIOLOGICAL AGENT REFERENCE SHEET**

Characteristics	
Risk Group	2 - associated with human which is rarely serious for which preventative or therapeutic interventions are often available
Agent Type	Biohazard
Description	<p>Bacteria belonging to the <i>Salmonella enterica</i> (Typhi) group are Gram-negative facultative anaerobic non-sporing rod. This pathogen is a leading cause of food poisoning worldwide. <i>S. enterica</i> has been reported as the causative agent in four different manifestations: gastroenteritis, bacteremia, enteric fever/Typhoid fever and asymptomatic. Their habitat is warm blooded animals. Pathenogenicity is more prevalent in children under 5 years old, 20-30 year olds and those older than 70.</p> <p>ref: <i>Salmonella enterica</i>. Genome. NCBI.</p>
Host Range	Humans are the only known host/reservoir
Exposure route	Ingestion or contact with infected people or their waste/blood products
Incubation period	3 to 60 days with most cases occurring between 7 and 14 days

Laboratory Hazards	
High Energy	(Statistically unknown) Centrifugation, sonication, vortexing
Sharps	Needles, broken glass

Aerosols	(Statistically unknown) Shaking, liquid culturing, pipetting
Equipment	Easily adhere to and stay on unsanitary equipment
Exposed body	Skin, eyes, mucous membranes
Notes	64 cases and 2 deaths between 1979 and 2004

### Laboratory Handling Guidelines

Biosafety Level	2 - refer to Biosafety Manual; contact EH&S for a copy
Training	EH&S Biosafety Training; Lab specific training
Engineering controls	BSC if working with any form
PPE	Eye protection, gloves and lab coat
Waste	Biohazard - put in red biohazard bins

### Agent Viability

Disinfection	1% bleach, 70% ethanol and iodines (0.075g/L)
Survival outside host	Cattle slurry: 19-60 days; cattle manure: 48 days; soil: 231 days; water: 152 days
Engineering controls	BSC if working with liquids; lids while working with high energy equipment
PPE	Eye protection, gloves, long sleeve or lab coat
Waste	Biohazard - put in red biohazard bins

### Exposure and Spill procedures

Mucous membranes	Flush eyes, nose, mouth/throat for 15 minutes
Skin contact	Wash with soap and water for a minimum of 30 second for bare skin contact; for broken skin wash with soap and water for 15 minutes
Minor (small) spills	Notify all persons present in the area. Allow aerosols to settle. While wearing protective clothing, gently cover the spill with absorbent paper towel and apply appropriate disinfectant, starting at perimeter and working towards the centre. Allow sufficient contact time before clean up.
Major (large) spills	Contact EH&S immediately; after-hours contact University Police
Waste	Biohazard - put waste in red biohazard bins; sterilize all tools after work

Vaccination Available for serotype Typhi

### References

Salmonella enterica: <https://www.canada.ca/en/public-health/services/laboratory-biosafety-biosecurity/pathogen-safety-data-sheets-risk-assessment/salmonella-enterica.html>