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Office of  
Laboratory  
Security

MSDS

**MATERIAL SAFETY DATA SHEET - INFECTIOUS SUBSTANCES****SECTION I - INFECTIOUS AGENT****NAME:** *Hepatitis A virus***SYNONYM OR CROSS REFERENCE:** Infectious hepatitis, epidemic hepatitis, epidemic jaundice, catarrhal jaundice, type A viral hepatitis, HAV, VHA, HA, MS-1 hepatitis, Botkins disease, infectious icterus**CHARACTERISTIC:** Positive single-stranded RNA, no envelope, 27-30 nm diameter, *Picornaviridae*, Hepatovirus; can be cultured in cell culture**SECTION II - HEALTH HAZARD****PATHOGENICITY:** Many infections are asymptomatic; abrupt onset with fever, malaise, anorexia, nausea and abdominal discomfort, followed within a few days by jaundice; mild illness (1-2 weeks) to severely disabling (6-9 months period); convalescence is prolonged; low case fatality rate and rare deaths usually in older patients; prolonged, relapsing hepatitis for up to 1 year occurs in 15% of cases; no chronic (long term) infections**EPIDEMIOLOGY:** Worldwide, sporadic and epidemic, cyclic recurrences; outbreaks in institutions, housing projects, day-care centres; where environmental sanitation is poor infection commonly occurs at an early age; slowly evolving epidemics in developed countries in school-age children and young adults; asymptomatic; HAV infections accounts for 20-25% of clinically apparent hepatitis cases worldwide**HOST RANGE:** Humans, marmosets (experimentally infected), chimpanzees, macaque monkeys, owl monkeys**INFECTIOUS DOSE:** Not known, however presumed to be in the range of 10-100 virus particles**MODE OF TRANSMISSION:** Person-to-person by faecal-oral route; ingestion of contaminated food (i.e., shell fish) and water; rare instances of transmission by blood transfusion from a donor in the incubation period; hands may play an important role in the direct as well as the indirect spread of HAV**INCUBATION PERIOD:** From 10-50 days, depending on dose; average 28-30 days**COMMUNICABILITY:** Transmission in humans shows maximum infectivity during the latter half of the incubation period, and continuing for a few days after onset of jaundice; most cases are usually non-infectious after the first week of jaundice; HAV is excreted in a highly concentrated form in the feces for a short period of time, reaches peak level the week or two before onset of symptoms; HAV has been detected up to 3 months after resolution of the symptoms

### SECTION III - DISSEMINATION

**RESERVOIR:** Humans; rarely captive chimpanzees; less frequently, certain other non-human primates

**ZOONOSIS:** Enzootic focus has been identified in Malaysia but there is no suggestion of transmission to man; hepatitis A virus has been linked to large disease outbreaks caused by shellfish - transmitted virus

**VECTORS:** None

### SECTION IV - VIABILITY

**DRUG SUSCEPTIBILITY:** Not affected by antibiotics

**SUSCEPTIBILITY TO DISINFECTANTS:** Susceptible to 1% sodium hypochlorite, 2% glutaraldehyde, formaldehyde; some non-lipid viruses are only moderately susceptible to 70% ethanol

**PHYSICAL INACTIVATION:** HAV is partially resistant to heat, still infectious after 10 - 12 hrs at 60° C; inactivation of HAV suspended in buffered saline occurs after 4 minutes at 70° C and immediately at 85° C and is inactivated by radiation; resistant to lip solvents; stable under extremes of pH (pH 3 - gastric acidity)

**SURVIVAL OUTSIDE HOST:** Survives in water and sewage for long periods, fragile in vitro, survival on fomites is > 7 days at low room humidity and 5° C stable under extremes of pH; HAV at 4° C, infectivity is reduced 0.5 log<sub>10</sub> after 6 weeks, no significant loss of antigenicity of samples after being stored at -70° C for > 6 months

### SECTION V - MEDICAL

**SURVEILLANCE:** Monitor for symptoms; confirmation serologically, RIA, ELISA

**FIRST AID/TREATMENT:** Rest

**IMMUNIZATION:** Vaccine for active immunization is available and recommended especially for travellers to high risk areas

**PROPHYLAXIS:** Immunization for travellers to endemic areas and IG for close contacts of a case, day-care workers, IG can be given before or within 2 weeks after coming in contact with HAV

### SECTION VI - LABORATORY HAZARDS

**LABORATORY-ACQUIRED INFECTIONS:** Low risk for laboratory personnel but a documented hazard in animal handlers and others working with infected chimpanzees

**SOURCES/SPECIMENS:** Feces of infected humans and chimpanzees

**PRIMARY HAZARDS:** Ingestion of feces, stool suspensions, food contaminated with faecal material or by food handler infected with HVA and other contaminated materials, importance of aerosol exposure has not been demonstrated

**SPECIAL HAZARDS:** None

## **SECTION VII - RECOMMENDED PRECAUTIONS**

**CONTAINMENT REQUIREMENTS:** Biosafety level 2 practices and containment for activities with infected materials; Animal Biosafety level 2 for activities using naturally or experimentally infected chimpanzees

**PROTECTIVE CLOTHING:** Laboratory coat; gloves when direct contact with infectious materials is unavoidable; gloves and gown for work in biosafety cabinet

**OTHER PRECAUTIONS:** Animal care personnel should wear gloves and take other appropriate precautions to avoid possible faecal-oral exposure; good personal hygiene and thorough washing of hands

## **SECTION VIII - HANDLING INFORMATION**

**SPILLS:** Allow aerosols to settle, wearing protective clothing, gently cover spill with paper towel and apply 1% sodium hypochlorite, starting at perimeter and working towards the centre; allow sufficient contact time (30 min) before clean up

**DISPOSAL:** Decontaminate before disposal; steam sterilization, incineration, chemical disinfection

**STORAGE:** In sealed containers that are appropriately labelled

## **SECTION IX - MISCELLANEOUS INFORMATION**

**Date prepared:** May, 2001

**Prepared by:** Office of Laboratory Security, PHAC

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