

HEPATITIS B VIRUS

ChemWatch Material Safety Data Sheet (REVIEW)

Issue Date: Fri 7-Apr-2000

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Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

HEPATITIS B VIRUS

CAS RN

Not avail

SUPPLIER

Company: Health Canada

Address:

AI 0900c2

Ottawa

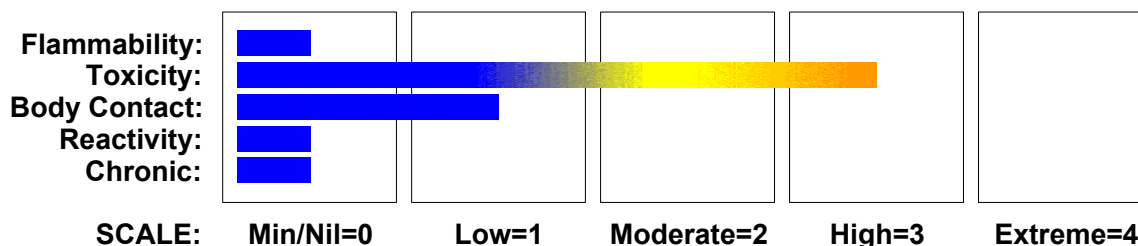
Ontario, K1A 0K9

CAN

Telephone: +1 613 957 2991

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HAZARD RATINGS



PRODUCT USE

Enveloped Hepadnaviridae, double stranded DNA with a lipoprotein coat containing HBsAg and a diameter of 42 nm.

SYNONYMS

Serum Hepatitis

Homologous Serum Jaundice

Australian Antigen Hepatitis

Type B Hepatitis

HBV

Section 2 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	INT HAZ	%
Hepatitis B virus	Not avail.	B	100

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Section 3 - HAZARDS IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE

CONSIDERED A DANGEROUS SUBSTANCE ACCORDING TO DIRECTIVE 67/548/EEC, POINT 4; AND HAZARDOUS ACCORDING TO OSHA 29 CFR 1910.1200 (USA).

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

Although ingestion is not thought to produce harmful effects (as classified under EC Directives), the material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (e.g liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health). Gastrointestinal tract discomfort may produce nausea and vomiting. In an occupational setting however, ingestion of insignificant quantities is not thought to be cause for concern.

EYE

Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn).

SKIN

The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.

INHALED

The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.

CHRONIC HEALTH EFFECTS

Principal routes of exposure are by skin contact, accidental injection (needle stick), ingestion and/or inhalation of aerosols. Symptoms and longer term effects are related to the pathology of the infection.

Section 4 - FIRST AID MEASURES

SWALLOWED

Transport to hospital or doctor and seek immediate attention.

EYE

- If material containing a biological agent comes in contact with the eyes:
- Seek immediate medical attention
- Removal of contact lenses should only be undertaken by skilled personnel.

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Section 4 - FIRST AID MEASURES ...

SKIN

- For any suspected contact with a material containing a biological agent
- Rinse thoroughly with water and perform approved disinfection procedures
- Seek medical attention.

INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prosthesis such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
- Transport to hospital, or doctor.

NOTES TO PHYSICIAN

Protective vaccination/immunisation should be provided to workers depending on the organism being worked with.
for infectious organisms:

BASIC TREATMENT

- Establish a patent airway with suction where necessary.
- Watch for signs of respiratory insufficiency and assist ventilation as necessary.
- Administer oxygen by non-rebreather mask at 10 to 15 l/min.

ADVANCED TREATMENT

- Consider orotracheal or nasotracheal intubation for airway control in unconscious patient or where respiratory arrest has occurred.
- Monitor and treat, where necessary, for arrhythmias.
- Start an IV D5W TKO.

SPECIAL CONSIDERATIONS

- Symptomatic and supportive care should not be delayed.
- BRONSTEIN, A.C. and CURRANCE, P.L.
EMERGENCY CARE FOR HAZARDOUS MATERIALS EXPOSURE: 2nd Ed. 1994
SURVEILLANCE on the organism being worked with.

Test patient blood for the presence of HBsAg.

FIRST AID / TREATMENT

Alpha interferon is the licenced treatment of chronic infection.

This treatment is approximately 30% effective in the elimination of "e" antigenemia.

IMMUNIZATION

An inactivated vaccine is available and is recommended for those persons exposed to an increased risk of infection (laboratory workers and other health care workers exposed to blood).

PROPHYLAXIS

Hepatitis B immunoglobulin (HBIG).

LABORATORY ACQUIRED INFECTIONS:

This the most frequently occurring laboratory acquired infection.

The

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Section 4 - FIRST AID MEASURES ...

incidence of infection in some categories of laboratory workers is 7 times greater than that of the general population. There have been 234 (3921 total infections surveyed) reported cases up to 1974 resulting in one death. In the UK there have been 26 reported cases of laboratory acquired infections from 1980-1987.

DRUG SUSCEPTIBILITY:

There is no specific antiviral.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- Water spray or fog.
- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water course.
- Use water delivered as a fine spray to control fire and cool adjacent area.
- Avoid spraying water onto liquid pools.
- Do not approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.

Decontamination to be carried out in accordance with instructions from supplier/emergency contact.

FIRE/EXPLOSION HAZARD

- Non combustible.
- Not considered a significant fire risk, however containers may burn.

FIRE INCOMPATIBILITY

None known

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

Action to be taken in the event of damage or leakage:

- If any person responsible for the carriage or opening of packages containing infectious substances (Class 6.2) becomes aware of damage to or leakage from such packages he/she should:
 - Avoid handling the package or keep handling to a minimum
 - Inspect adjacent packages for contamination and put aside any that may have been contaminated.
 - Inform the appropriate Health or Veterinary Authority, and provide information

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Section 6 - ACCIDENTAL RELEASE MEASURES ...

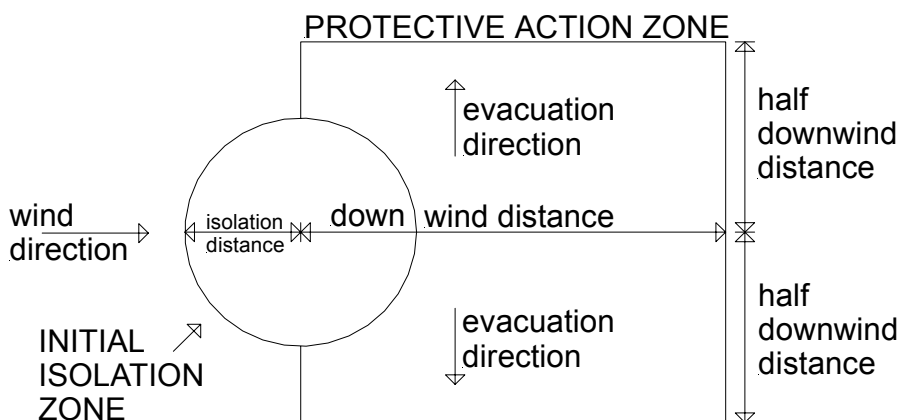
on any other countries of transit where persons may have been exposed to danger;
and

- Notify the consignor and/or consignee.
- A Public Health or Veterinary Authority to which actual or suspected leakage from or damage to an infectious substance package is reported, should notify the authorities of any countries in which the package may have been handled including countries in transit. [IMDG Code p. 6309]
- Allow aerosols to settle.
- Cover spill with paper towel.
- Apply a 1% sodium hypochlorite solution.
- Start application from the perimeter of the spill and work towards the centre.
- Allow sufficient contact time (30 minutes) before beginning clean-up.

MAJOR SPILLS

Not applicable

PROTECTIVE ACTIONS FOR SPILL



From IERG (Canada/Australia)

Isolation Distance

-

Downwind Protection Distance

25 metres

FOOTNOTES

- 1 PROTECTIVE ACTION ZONE is defined as the area in which people are at risk of harmful exposure. This zone assumes that random changes in wind direction confines the vapour plume to an area within 30 degrees on either side of the predominant wind direction, resulting in a crosswind protective action distance equal to the downwind protective action distance.
- 2 PROTECTIVE ACTIONS should be initiated to the extent possible, beginning with those closest to the spill and working away from the site in the downwind direction. Within the protective action zone a level of vapour concentration may exist resulting in nearly all unprotected persons becoming incapacitated and unable to take protective action and/or incurring serious or irreversible health effects.
- 3 INITIAL ISOLATION ZONE is determined as an area, including upwind of the incident, within which a high probability of localised wind reversal may expose nearly all persons without appropriate protection to life-threatening concentrations of the material.
- 4 SMALL SPILLS involve a leaking package of 200 litres (55 US gallons) or less, such as a drum (jerrican or box with inner containers). Larger packages leaking

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Section 6 - ACCIDENTAL RELEASE MEASURES ...

less than 200 litres and compressed gas leaking from a small cylinder are also considered "small spills".

LARGE SPILLS involve many small leaking packages or a leaking package of greater than 200 litres, such as a cargo tank, portable tank or a "one-tonne" compressed gas cylinder.

5 Guide 158 is taken from the US DOT emergency response guide book.

6 IERG information is derived from CANUTEC - Transport Canada.

EMERGENCY RESPONSE PLANNING GUIDLINES (ERPG)

The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

life-threatening health effects is:

irreversible or other serious effects or symptoms which could impair an individual's ability to take protective action is:

other than mild, transient adverse effects without perceiving a clearly defined odour is:

American Industrial Hygiene Association (AIHA)

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

Laboratories and areas where active biological agents are handled must be restricted to authorised persons trained to perform specific tasks. Clothing restrictions must be enforced in these areas and the mandatory equipment worn. Laboratory Containment or Physical Containment Level 3 (PC 3) must be used for work with biological agents in Hazard or Risk Group 3.

- Laboratory personnel must receive suitable and sufficient information, instruction and training in working safely with agents in Group 3.
- A high standard of supervision of the work should be maintained. A list of employees engaged in work with biological agents in Hazard Group 3 is to be kept indicating the type of work done and, where known, agents to which they are exposed. This list must include, as appropriate, a record of exposures (eg those resulting from accidents and incidents). In general this list must be kept for at least 10 years but in some cases an extended period up to 40 years may be necessary (see Schedule 9 of the UK COSHH Act).
- To comply with the requirements for Laboratory or Physical Containment Level 3 (PC 3) the Laboratory must be separated from other activities in the same building.
- Access to the laboratory is to be restricted to authorised persons.
- The Laboratory must be maintained at an air pressure negative to the atmosphere. Extracted air must be HEPAR filtered (or equivalent).
- The Laboratory must be sealable to permit disinfection.
- The Laboratory must have an observation window or an alternative so that occupants can be seen.
- The Laboratory must contain its own equipment, so far as is reasonably practicable. Where this is not practical, eg deep freezer, cold rooms etc. material should be transported and stored without spillage in properly labelled

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Section 7 - HANDLING AND STORAGE ...

robust containers which should be opened only in Containment Level 3 accommodation

- There must be specified disinfection procedures.
 - Benches or other working surfaces must be impervious to water, easy to clean and resistant to acids, alkalis, solvents and disinfectants.
 - Safe storage must be provided for biological agents.
 - Procedures that may give rise to infectious aerosols must be conducted in a microbiological safety cabinet, isolator, glove box or otherwise suitably contained.
 - Mouth pipetting is forbidden.
 - An incinerator must be accessible for the disposal of infected animal carcasses. [‘Access to an incinerator’ may be taken to mean an incinerator at another site but whether local or distant, carcasses for incineration must be transported in secure containers.]
 - There should be adequate space (24m³) in a laboratory for each worker. Laboratory doors should be closed when work is in progress and locked when the room is unoccupied. A biohazard sign should be posted at the Laboratory entrance.
 - Eating, chewing, drinking, smoking, taking medication, storing food and applying cosmetics in the laboratory should be forbidden.
 - Bench surfaces should be regularly decontaminated according to the pattern of the work.
 - A Containment Level 3 (PC 3) Laboratory is required to be sealable to permit disinfection. It may be necessary depending on the assessment of risk, to decontaminate by fumigating the accommodation if, for example a spillage has occurred or maintenance work is to be carried out.
 - Gloves must be worn for all work with infective materials and hands must be washed before leaving the laboratory. Gloves should be washed or preferably removed or changed before touching items likely to be touched by others not similarly protected, (eg phones, paperwork). Computer keyboards and, where practicable, equipment controls should be protected by a removable flexible cover that can be disinfected.
 - A means for the safe collection, storage and disposal of contaminated waste shall be provided. An autoclave for the sterilisation of items to be recycled and/or waste materials should preferably be situated within the laboratory. If this is not practicable, an autoclave should be readily accessible in the laboratory suite.
 - Materials for autoclaving should be transported to the autoclave in robust containers without spillage.
 - Contaminated waste should be suitably labelled before removal for incineration. Carcasses for incineration must be transported in secure containers to the incinerator site.
 - Used laboratory glassware and other materials awaiting sterilisation before recycling should be stored in a safe manner. Pipettes, if placed in disinfectant, should be totally immersed.
 - All accidents and incidents should be immediately reported to and recorded by the person responsible for the work or other delegated person
- Animal Containment Level 3 is suitable for work with vertebrates that are deliberately inoculated with biological agents of Hazard Group 3 or viable material suspected to contain these agents. Animal Room personnel must receive suitable and sufficient information, instruction and training in working safely with the animals to be used. A high standard of supervision of the work should be maintained. Personnel having contact with the animals and waste materials arising from the work must be made familiar with any local codes of practice and be aware of any other precautions or procedures that may be required, eg to

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Section 7 - HANDLING AND STORAGE ...

protect them against latent or persistent infections in the species in use. The person responsible for the animal experiment must ensure that those who need to know are made aware of the particular hazards concerned.

- A list of employees engaged in work with biological agents in Hazard Group 3 through contact with infected animals or waste materials, is to be kept indicating the type of work done and, where known, the agents to which they are exposed. This list must include, as appropriate, a record of exposures (eg those resulting from accidents and incidents). In general this list must be kept for at least 10 years but in some cases an extended period up to 40 years may be necessary (see Schedule 9 of the UK COSHH Act).
- The animal room must be separated from other activities in the same building. Access to the laboratory is to be limited to authorised persons.
- The room must be easy to clean. Floors, walls, benches and other working surfaces must be impervious to water, and resistant to acids, alkalis, solvents and disinfectants.
- The room must be maintained at an air pressure negative to the atmosphere. Extracted air must be HEPAR filtered (or equivalent).
- The room must be sealable to permit disinfection.
- The room must have an observation window or an alternative so that occupants can be seen.
- There must be specified disinfection procedures.
- Effective vector control measures (eg against rodents and insects) must be taken.
- Safe storage facilities must be provided for biological agents.
- The room must contain its own equipment, so far as is reasonably practicable.
- Procedures which involve handling of infective material, including any infected animal, or where an aerosol may be created, must be conducted in a microbiological safety cabinet, isolator, glove box or otherwise suitably contained.
- An incinerator must be accessible for the disposal of infected animal carcasses. [Access to an incinerator' may be taken to mean an incinerator at another site but whether local or distant, carcasses for incineration must be transported in secure containers.]
- The animal room should be separated from any general thoroughfare by an anteroom with two doors or sited within an animal suite or animal unit. The anteroom is to have facilities for storage of protective clothing. Showering facilities should be provided in the anteroom or within the animal suite or unit.
- A specific biohazard sign indicating the level of work should be posted at the entrance to the animal room and the room or suite should be locked when staff are absent.
- A Containment Level 3 Animal Room is required to be sealable to permit disinfection. It may be necessary depending on the assessment of risk, to decontaminate by fumigating the accommodation if, for example a spillage has occurred or maintenance work is to be carried out.
- Where floor drains are installed, the drain traps should be kept filled. They should be disinfected and cleaned regularly and at the end of each experiment.
- Animals infected with Hazard Group 3 agents should be housed in safety cabinets or isolators or in other forms of primary containment that are provided with HEPA-filtered exhaust ventilation or equivalent.
- Where it is not reasonably practical to use primary containment for animals, personnel should wear a complete change of clothing and use high performance protective respiratory equipment at all times.
- When undertaking procedures with infected animals that are likely to give rise to aerosols (eg inoculation procedures, necropsy and harvesting infected tissues

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Section 7 - HANDLING AND STORAGE ...

and fluids), a Class I or Class III Microbiological Safety Cabinet or a unit offering an equivalent level of protection, or an isolator or other suitable means of containment is to be used. The containment unit used must exhaust to the outside air or to the room air extraction system via a HEPA filter or equivalent.

- Eating, chewing, drinking, smoking, taking medication, storing human food and applying cosmetics in the animal room should be forbidden.
 - Mouth pipetting is forbidden.
 - Gloves must be worn for all work with infective materials and hands must be washed before leaving the animal room. Gloves should be washed or preferably removed or changed before touching items likely to be touched by others not similarly protected, (eg phones, paperwork). Computer keyboards and, where practicable, equipment controls should be protected by a removable flexible cover that can be disinfected.
 - A wash basin should be located near the animal room exit with taps that can be operated without being touched by hand.
 - Hands should be decontaminated immediately when contamination is suspected and after removal of protective clothing when leaving the anteroom or suite.
 - A means for the safe collection, storage and disposal of contaminated waste shall be provided. An autoclave for the sterilisation of waste materials should be available on site. The autoclave should be sited in the same building as the animal room or animal suite. Material for autoclaving or incineration and used animal cages should be transported without spillage.
 - All waste material including animal bedding, should be rendered non-infective before disposal.
 - Used animal cages should be rendered non-infective by disinfection, fumigation or heat treatment by steaming or autoclaving.
 - Work surfaces should be disinfected after use and the animal room disinfected or fumigated at the end of each experiment
 - Infective materials taken into the animal room, or removed from it, should be transported in sealed containers.
 - All accidents and incidents, including animal bites and scratches, should be reported to and recorded by the person responsible for the work who should then take the appropriate measures specified in the local code of practice.
- Where invertebrates are known to be infected with biological agents, the principles of containment applying to animal rooms must be applied. Work must be done at the level of containment appropriate to hazard rating of the agent concerned*. In adopting the principles used in the containment of animals the following additional requirements should be considered.
- Separate rooms should be used for infected and non-infected invertebrates.
 - Invertebrates should be contained appropriately according to whether they live in water, are amphibious, crawl or jump, or fly.
 - Aquatic or amphibious invertebrates should be kept in tanks with lids to prevent escape.
 - Crawling, jumping or flying invertebrates should be kept in insect-proof rooms, ventilation inlets and outlets should be screened, entry to rooms should be through airlocks (insectocutors may be placed in airlocks), measures should be taken to ensure that escaped invertebrates are easily detected, recaptured and destroyed, laboratory sinks should be provided with adequate traps, liquid and solid waste should be treated before disposal (preferably with heat, rather than by chemical means).
 - Insecticidal sprays, although useful in an emergency, may render the room unfit for invertebrates.
 - Arthropods may be chilled to reduce their activity and prevent escape. Flying or crawling arthropods requiring Containment Level 1 and 2, should be handled on

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Section 7 - HANDLING AND STORAGE ...

white trays to detect escapees.

- Ticks and mites should be kept in containers over trays of oil.
- Flying insects infected with agents in Hazard Groups 2, 3 or 4 should be kept in double cages; both enclosures should be labelled.
- Experimental cages/containers should be numbered/labelled or otherwise documented to indicate hazard
- Containment Level 3 or 4, flying or crawling arthropods should be kept in identified lots and each lot accounted for; they should also be handled in safety cabinets, isolators or partial containment devices provided with HEPA-filtered exhaust ventilation or its equivalent.
- Infected invertebrates not known to be dead should be handled in a safety cabinet or other form of safe enclosure. Records should be made of the number of individual invertebrates received by a laboratory as soon as is practically possible. Each invertebrate should be accounted for as the work proceeds through to final fixation or disposal.
- Where the identification of flying or crawling invertebrates alone is required, the container may be frozen two hours @ -20 C to kill them. Full Containment Level 3 is not always required for all work with Hazard Group 3 agents. Non-infective stages in the life-cycle of a parasite and certain agents for which a derogation has been allowed, may not always demand an inward airflow or use of a safety cabinet.

SUITABLE CONTAINER

Receptacles with their closures or fittings shall be as approved by the competent authority of the country of origin.

STORAGE INCOMPATIBILITY

Presence of heat source and direct sunlight (ultra-violet radiation).
Avoid reaction with oxidising agents
Avoid strong acids.

STORAGE REQUIREMENTS

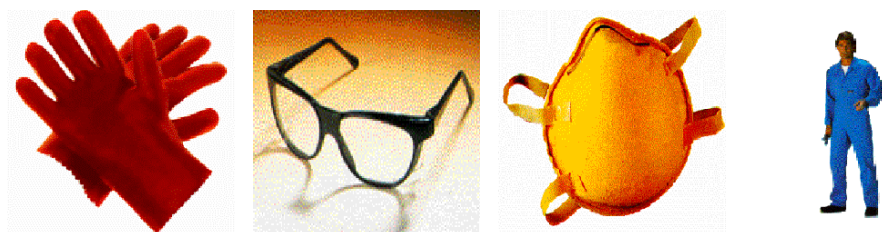
It is required for safe working that the Containment Level selected for any laboratory suite, storeroom or animal room must match the hazard grouping of the biological agent as a minimum. (Some exceptions may apply)

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Not available. Refer to individual constituents.

PERSONAL PROTECTION



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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION ...

EYE

- Safety glasses with side shields; or as required,
- Chemical goggles.
- Contact lenses pose a special hazard; soft lenses may absorb irritants and all lenses concentrate them.

HANDS/FEET

Wear general protective gloves: i.e. Disposable polythene gloves or Cotton gloves or Light weight rubber gloves, with Barrier cream preferably Safety footwear.

OTHER

Laboratory coat

- Overalls.
- Barrier cream
- Eyewash unit.

Ensure there is ready access to a safety shower

- Laboratory coats or gowns should be side or back fastening and should be worn when in and removed when leaving the area.
- Separate storage, set apart from personal clothing, should be available in the laboratory suite.
- A wash basin should be located near the laboratory exit with taps that can be operated without being touched by hand.

ENGINEERING CONTROLS

Access to the area is to be restricted to authorised persons. A specific disinfection procedure must be established and applied. If the area (laboratory, store, animal room) is mechanically ventilated it must be maintained at an air pressure negative to atmosphere whilst work is in progress.

If traffic in and out of Containment Level 2-4 rooms interferes with ventilation airflow patterns and, if the laboratory is ventilated specifically to contain airborne pathogens in the event of accident, then engineering controls and working arrangements must be devised to counter the risk of airborne transmission to other areas.

When undertaking procedures that are likely to give rise to infectious aerosols, a Class 1 microbiological Safety Cabinet conforming to BS5726 or with an equivalent, verified protection factor should be used. Cabinets should exhaust to outside air. Double HEPAR filtering is not necessary biological agents requiring Containment Level 2.

FUMIGATION:

Microbiological safety cabinets must always be fumigated if a large spill of infectious material occurs within them, before filters are changed or any maintenance work is carried out which involves access to the interior of the cabinet (air duct maintenance for example).

- Fumigation should be conducted with the night door securely sealed and the non-return valve left closed.
- Passive migration of the fumigant through the filter is allowable. Alternately the valve may be left open and the fan may be run for 10 to 15 seconds thus ensuring penetration of filter medium. The valve should then be closed and the fan switched off allowing the remainder of the fumigant to disperse within the cabinet. After at least six hours the fumigant should be exhausted to atmosphere by switching on the fan and allowing room air to enter through, for example, the

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION ...

night door bung-hole.

- Ensure that no personnel remain in the vicinity of the exhaust outlet and that exhaust air does not enter windows or ventilation air intakes.
- Discarded filter units should be bagged and autoclaved prior to disposal.
- There are special difficulties if the cabinet has been used with agents responsible for causing transmissible spongiform encephalopathies as they are resistant to inactivation by formalin.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Solid.
Infectious.

Molecular Weight: Not applicable
Melting Range (°C): Not applicable
Solubility in water (g/L): Not applicable
pH (1% solution): Not applicable
Volatile Component (%vol): Negligible
Relative Vapour Density (air=1): Not applicable
Lower Explosive Limit (%): Not applicable
Autoignition Temp (°C): Not applicable
State: Divided solid

Boiling Range (°C): Not applicable
Specific Gravity (water=1): Not applicable
pH (as supplied): Not applicable
Vapour Pressure (kPa): Not applicable
Evaporation Rate: Not applicable
Flash Point (°C): Not applicable
Upper Explosive Limit (%): Not applicable
Decomposition Temp (°C):

APPEARANCE

A Biological Agent of Hazard Group 3 that can cause severe human disease, presents a serious hazard to employees, may present a risk of spreading to the community, but there is usually effective prophylaxis or treatment available.

A list of workers exposed to this agent is to be kept for 40 years at the end of the last known exposure.

EPIDEMIOLOGY:

Found throughout the world and is endemic with little seasonal variation. Incidence is common in young adults of North America and in infancy or childhood in Africa and Asia. The antigen carrier rate in North America is less than 1% for the general population and 10-15% in Asia. This is a common infection in high risk groups such as drug abusers, sexually promiscuous persons and healthcare workers exposed to blood or serous fluids.

HOST RANGE:

Humans, chimpanzees are susceptible to the disease.

MODE OF TRANSMISSION:

The virus is spread via percutaneous or permucosal exposure to infectious body fluids such as blood, serum-derived fluids, semen, vaginal fluids and saliva. The virus is commonly spread via contaminated needles, syringes and IV equipment. Other modes of transmission include the contamination of wounds and lacerations, sexual contact and exposure of the mucous membranes.

COMMUNICABILITY:

The virus may be communicable for weeks before the onset of the symptoms. The patient remains infective throughout the clinical and chronic carrier states. The infectivity of chronically infected persons ranges from

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Section 9 - PHYSICAL AND CHEMICAL PROPERTIES ...

highly infectious to sparingly infectious.

RESERVOIR:

Humans.

SURVIVAL OUTSIDE HOST:

The virus is able to survive well in dried blood for several weeks.

SOURCES AND SPECIMENS:

Blood and blood products, cerebrospinal fluid (CSF), semen, urine and saliva.

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

Section 11 - TOXICOLOGICAL INFORMATION

Hepatitis B virus

No significant acute toxicological data identified in literature search.

Section 12 - ECOLOGICAL INFORMATION

No data for Hepatitis B virus.

Section 13 - DISPOSAL CONSIDERATIONS

- There should be a means for the safe collection, storage and disposal of contaminated waste.
- An autoclave for sterilisation of waste materials should be readily accessible, preferably in the same laboratory or building.
- There should be access to an incinerator for disposal of any infected animal carcasses or combustible waste.
- All infected waste arising from work in laboratories should be made safe to handle, ideally by autoclaving before disposal by incineration.
- If it is not reasonably practicable to autoclave wastes, it should be disposed of by incineration. It is essential that the waste is secured in strong, leak-proof containers and transported direct to the incinerator.
- Infected carcasses or human tissue may be transported to another site for final disposal provided a suitable form of packaging is used both to protect handlers and transporters against infection and to avoid public offence.
- In some cases it may be necessary to consult agriculture departments before carcasses or tissues infected with pathogens are moved; appropriate movement must comply with regulation/ legislation.
- Infected materials should be placed in yellow waste sacks and suitably

continued...

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Section 13 - DISPOSAL CONSIDERATIONS ...

labelled (with permanent marker or tie-on label) showing the source of the material.

- Sacks should be no more than three quarters full and should be closed with purpose-made plastic ties or closures or, in the case of light-gauge sacks, may be tied off at the neck. Heat-sealers, purpose-made for clinical waste may also be used.
- Sacks should then be stored and transported in a robust secondary container which is leak-proof and which may be readily decontaminated.
- Alternately animal carcasses which present higher-level risks (for example material from Animal Containment Levels 3 and 4) may be transported in purpose-made plastic disposal containers. These are hermetically sealed with snap-on lids and are designed for safe transportation and incineration in their entirety.
- After sealing, the container should be externally decontaminated and labelled before removal to the incinerator.
- It is advisable to use only containers of the type which conform with drop-tests and leak-tests defined, for example, by the United Nations.

PHYSICAL INACTIVATION:

DISINFECTANT SUSCEPTIBILITY:

Section 14 - TRANSPORTATION INFORMATION



Shipping Name: INFECTIOUS SUBSTANCE, AFFECTING HUMANS

Hazard Class: 6.2

UN/NA Number: 2814

ADR Number: 606

Packing Group: None

Labels Required: infectious substance

Additional Shipping Information:

International Transport Regulations:

IMO: 6.2

Section 15 - REGULATORY INFORMATION



continued...

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Section 15 - REGULATORY INFORMATION ...

RISK

Preparation is WGK 1

Name	Score	WGK
Hepatitis B virus	0	1

SAFETY

Do not breathe dust. Avoid contact with skin. Use only in well ventilated areas. Keep container in a well ventilated place. Take off immediately all contaminated clothing. If you feel unwell contact Doctor or Poisons Information Centre. (Show the label if possible). In case of accident by inhalation: remove casualty to fresh air and keep at rest.

REGULATIONS

Section 16 - OTHER INFORMATION

RISK

Explanation of Risk Codes used in the Ingredient Table

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