

# Handling Enzymes safely

National Centre for Biotechnology Education

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## Liquid enzyme products

As the active components of enzyme products are water-soluble, water should always be used for the removal of enzymes.

### Do not let liquid products dry up

If liquid enzymes are allowed to dry up, there is a risk of dust formation. In susceptible people the repeated inhalation of dust may provoke asthma or hay fever. That is why any spillage — on equipment, on the floor or bench — should be rinsed into the sewer with water — straight away.

### Avoid the formation of aerosols

If enzyme-containing aerosols are formed, there is a risk of inhalation of the enzyme. In susceptible people the repeated inhalation of dust may provoke asthma or hay fever. That is why enzymes should never be sprayed.

### Avoid direct skin and eye contact

If, by accident, you get liquid enzyme on your skin or in your eyes, the remedy is plenty of tap water — quickly. The same applies to clothing. In the event of large spill, to be on the safe side take a shower, immerse the clothes in water and wash as usual.

This treatment will generally prove sufficient, but don't be careless: if symptoms develop in the respiratory passages, on the skin or in the eyes, see a doctor immediately.

## Information for the doctor

This medical information is only meant to provide guidance to the doctor in the event of an emergency. The attending doctor must make his/her own diagnosis of the illness and prescribe the specific treatment to be administered.

Symptoms like hay fever and asthma may appear within 0–12 hours after exposure (inhalation) in sensitised people. It is suggested that any symptom in the respiratory tract be primarily suspected to be on an allergic nature and treated as such — if treatment is felt necessary. Expiratory dyspnea should be treated as allergic asthma. Injection of adrenaline or theophylline is usually effective and may be supplemented by administration of beta-2-receptor stimulating agents.

Proteolytic enzymes (proteases) can irritate the skin and mucous membranes. More pronounced skin irritation or eczema should be examined and treated. Topical steroids are usually effective.

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