

# Safety Alert

## ----- Broken Mercury Thermometer Event

### Brief Description

On 27 June 2024 at 15:45, while performing an experiment, a research assistant discovered a broken mercury thermometer suspended on a float in a water bath and immediately contacted the safety officer, who contacted the HSE to deal with the situation. The RA reported that she was slightly dizzy, and after subsequent observation she was not unwell and worked normally the next day.

### Cause(s) of Accident

The mercury thermometer had a range of 35-42° C. The lab technician used it to monitor the temperature of the 60° C water bath and left it alone, and the thermometer exceeded the range causing it to break.

### Hazards of Mercury

Elemental mercury releases mercury vapour continuously at room temperature, and inhalation of mercury vapour can cause damage to the nervous, digestive and immune systems, as well as to the lungs and kidneys, with potentially fatal consequences. Inorganic salts of mercury are corrosive to the skin, eyes, and gastrointestinal tract, and can cause nephrotoxicity if ingested. Neurological and functional disturbances may be observed after inhalation, ingestion or epidermal exposure to different mercury compounds. Symptoms include tremors, insomnia, memory loss, neuromuscular effects, headaches and cognitive and motor dysfunction.

《Occupational exposure limits for hazardous agents in the workplace— Part 1: Chemical hazardous agents》 (GBZ 2.1-2019)

Mercury (vapour) OELs PC-TWA: 0.02 mg/m<sup>3</sup> OELs PC-STEL: 0.04 mg/m<sup>3</sup>

### Learning Points

1. Keep statistics on the use of mercury thermometers in the laboratory and recommend the use of red-liquid-filled thermometer/electronic thermometers instead of mercury thermometers;
2. Labelling of thermometers with measurable ranges;
3. Safety Officer conduct regular safety training within the laboratory to enhance the safety awareness of laboratory staff;
4. Improvement of routine laboratory inspection system.

### Accident-related photos

