Hydrofluoric acid/Hydrogen Fluoride

Hydrofluoric acid is an extremely dangerous chemical and a contact poison, making it extremely hazardous even at low concentrations. Hydrofluoric acid is readily absorbed by human tissue but it often shows no immediate noticeable effects, this is because it reacts with the nerve endings at the point of contact. After this chemical has entered the tissue it can enter the bloodstream and bones where it reacts with the calcium causing, among other things, bone damage, gangrene, severe burns and death.

Identification

Hydrogen Fluoride	Pure form; A gas at room temperature but is often handled below 17 °C (62 °F) as it is a liquid below this point. A colourless liquid or gas with an irritating odour.
Hydrofluoric acid	Hydrogen Fluoride dissolved in water, can be up to 99% Hydrogen fluoride. A colourless liquid that at lower concentrations may be indistinguishable from water.

Role of PPE

Personal protective equipment must always be a last line of protection and wherever possible, proper safe handling practices must be used to limit or eliminate the amount of direct contact with hazardous chemicals.

Selection of PPE

A good or a Full permeation barrier to a chemical does not guarantee safety and careful selection must be made when choosing appropriate safety clothing. Appropriate PPE can only be selected after a full risk assessment to identify the hazards and decide what appropriate type of clothing that has been deemed necessary.

Barrier Information

The below suits may not be appropriate for all situations and may or may not provide a full permeation barrier. For a full list of breakthrough times please request a Chemical Guardian Body Protection report.

Hydrogen Fluoride, Gas

As a gaseous hazard, a gas-tight suit may be considered, this would include the MICROCHEM® 6000 and the TRELLCHEM® range.
Under certain situations a risk assessment may find a gas-tight suit is not necessary, in which case the MICROCHEM® 4000 and 5000 have both been tested against this gas, with the MICROCHEM® 5000 having particularly good permeation times.

Hydrogen Fluoride, Liquid

Hydrogen Fluoride is a liquid when below 17 °C (62 °F) but is often handled much colder than this. As our body protection range is not designed to offer any thermal protection, additional thermal protective clothing may have to be worn under the garment to prevent frostbite.
Several materials in our body protection range have been tested against Hydrogen fluoride liquid, the MICROCHEM® 4000 may be suitable for lower levels of exposure while the MICROCHEM® 5000 shows a full permeation barrier. For gas-tight suit options the MICROCHEM® 6000, TRELLCHEM® VPS, VPS Flash and EVO would all be expected to show good to full barriers.

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Hydrofluoric acid

The barrier offered by our body protection range will vary depending on the concentration of the Hydrofluoric acid handled. For general barriers we would expect the MICROCHEM® 3000 to show a barrier to concentrations of Hydrofluoric acid below 50 % and a medium barrier up to 75 %. We would expect the MICROCHEM® 4000 to show a good barrier to concentrations of Hydrofluoric acid up to 75% and a medium barrier above this. We would expect the MICROCHEM® 5000 to offer a good barrier at any concentration of Hydrofluoric acid.
In our gastight suits we would expect a good barrier from the MICROCHEM® 6000 at any concentration of Hydrofluoric acid and a good barrier from the TRELLCHEM® VPS, VPS FLASH and EVO.
Although most of our non-gastight chemical protective suits offer at least some protection to this chemical, the MICROCHEM® 4000 and 5000 may be considered for their greater mechanical strength.

Estimations of the barrier properties of fabrics are based on extrapolations from laboratory test results and information regarding the composition of the chemicals. Synergistic effects of mixing chemicals have not been accounted for. Estimations are subject to change if new testing is carried out providing better grounds for extrapolations. For these reasons, any information in this report must be advisory only and Ansell fully disclaims any liability including warranties related to any statement contained herein.