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NEW F-ALKYLATED TENSIO-ACTIVE AGENTS: APPLICATION IN MULTIPURPOSE FIRE-FIGHTING FOAMS

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For several years perfluoroalkyl surfactants are used in fire-fighting foams. We were interested in the development of foams acting on fires at polar and non polar liquids by water retention.

Usually F-alkylated surfactants are strongly hydrophobic and oleophobic and act by decantation of water.

We synthesized new compounds showing :

- An hydrophobic perfluoroalkyl tail.
- An hydrophilic head.
- Between the two parts an hydroxyl group able to retain water molecules by H-bonding, allowing to strengthen the walls of the foam bubbles.

Multipurpose fire-fighting foams were prepared using these surfacting agents and were evaluated on different types of fire (polar or non polar liquids), comparing their properties to those of commercial highly fluorinated emulsifying compounds.