

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A process for continuous preparation of halogenated alkoxyethane of general formula
5 XCIHC-CF₂OR, where X is -Cl or -F and OR is C₁₋₄ alkoxy, the process comprising a step of introducing in a flow reactor reaction components comprising (i) a compound of general formula XCIHC-CYF₂, where each of X and Y is independently -Cl or -F, (ii) a base, and (iii) a C₁₋₄ alkanol, wherein
- a) the flow reactor comprises one or more tubular flow line(s) through which the
10 reaction components flow as a reaction mixture,
 - b) the halogenated alkoxyethane is formed at least upon the reaction components mixing, with the so formed halogenated alkoxyethane flowing out of the flow reactor in a reactor effluent, and
 - c) the base is one that forms a salt soluble in the alkanol during formation of the
15 halogenated alkoxyethane.
2. The process of claim 1, wherein the one or more tubular flow line(s) have an internal cross-sectional area of less than about 115 mm².
- 20 3. A process for continuous preparation of halogenated alkoxyethane of general formula XCIHC-CF₂OR, where X is a -Cl or -F and OR is C₁₋₄ alkoxy, the process comprising a step of introducing in a flow reactor reaction components comprising (i) a compound of general formula XCIHC-CYF₂, where each of X and Y is independently -Cl or -F, (ii) a base, and (iii) a C₁₋₄ alkanol, wherein
- 25 a) the flow reactor comprises one or more tubular flow line(s) having an internal cross-sectional area of less than 115 mm² through which the reaction components flow as a reaction mixture, and
 - b) the halogenated alkoxyethane is formed at least upon the reaction components mixing, with the so formed halogenated alkoxyethane flowing out of the flow reactor in a
30 reactor effluent.

- 47 -

4. The process of claim 3, wherein the base is one that forms a salt soluble in the alkanol during formation of the halogenated alkoxyethane.
5. The process of any one of claims 1-4, wherein the one or more tubular flow line(s) has/have an internal cross-sectional area of less than 30 mm².
6. The process of any one of claims 1-5, wherein the one or more tubular flow line(s) have a circular internal cross-section.
- 10 7. The process of claim 6, wherein the tubular flow lines have a circular internal cross-section with a diameter between 0.1 and 6 mm.
8. The process of any one of claims 1-7, wherein the one or more tubular flow line(s) has/have a total internal volume in the range of 100 mL to 1L.
- 15 9. The process of any one of claims 1-8, wherein the reactor effluent containing the halogenated alkoxyethane exits the reactor at a flow rate of at least 50 mL/min.
10. The process of any one of claims 1-9, wherein the reactor effluent contains at least 90% by volume of the halogenated alkoxyethane.
- 20 11. The process of any one of claims 1-10, wherein the flow reactor provides a residence time of less than about 5 minutes.
- 25 12. The process of any one of claims 1-11, wherein the reaction mixture is obtained by mixing (i) a solution of the C₁₋₄ alkanol and the base with (ii) the compound of general formula XCIHC-CYF₂.
13. The process of any one of claims 1-12, wherein the mixing is performed by combining (i) a flow of the solution of the C₁₋₄ alkanol and the base with (ii) a flow of the compound of general formula XCIHC-CYF₂ according to a flow-rate ratio from 1:1 to 10:1.
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- 48 -

14. The process of any one of claims 1-13, wherein the base is used in an amount of between 1% and 30% by weight relative to the total weight of base and C₁₋₄ alkanol.
- 5 15. The process of any one of claims 1-14, wherein the compound of general formula XClHC-CYF₂ is Cl₂HC-CF₃ or FClHC-CF₃.
16. The process of any one of claims 1-15, wherein the C₁₋₄ alkanol is selected from methanol (CH₃OH), ethanol (CH₃CH₂OH), 1-propanol (CH₃CH₂CH₂OH), 2-propanol
10 ((CH₃)₂CHOH), 1-butanol (CH₃CH₂CH₂CH₂OH), 2-butanol (CH₃CH₂CHOHCH₃), 2-methyl-1-propanol ((CH₃)₂CHCH₂OH), 2-methyl-2-propanol ((CH₃)₃COH), and a combination thereof.
17. The process of any one of claims 1-16, wherein the halogenated alkoxyethane is
15 Cl₂HC-CF₂OCH₃ (methoxyflurane) or ClFHC-CF₂OCH₃.
18. The process of any one of claims 1-17, wherein the base comprises an alkali metal base cation, an ammonium base cation, or a phosphonium base cation.
- 20 19. The process of any one of claims 1-18, wherein the base is selected from sodium hydroxide, potassium hydroxide, sodium methoxide, potassium methoxide, tetrabutylammonium hydroxide, benzyl(trimethyl)ammonium hydroxide, *N*-methyl-*N,N,N*-triethylammonium chloride (Aliquat 336), tetraethylammonium hydroxide, tetramethylammonium hydroxide, and tetramethylphosphonium hydroxide.
- 25 20. The process of any one of claims 1-19, wherein the halogenated alkoxyethane is also formed by heating the reaction mixture to a temperature of up to 140°C.
21. The process of any one of claims 1-20, wherein the one or more tubular flow line(s)
30 are provided in a coiled arrangement.

- 49 -

22. The process of any one of claims 1-21, further comprising a purification step in which the reactor effluent, or an organic phase derived from the reactor effluent and containing the halogenated alkoxyethane, is treated with an amine.

5 23. The process of any one of claims 1-21, further comprising a purification procedure that comprises, in the following order, the steps of:

- a) mixing the reactor effluent with a polar solvent to induce phase separation between a polar phase and an organic phase,
- b) separating the organic phase from the polar phase,
- 10 c) treating the separated organic phase with an amine,
- d) washing the organic phase obtained in c) with an acid solution,
- e) desiccating the organic phase obtained in d), and
- f) distilling the organic phase obtained in e) to retrieve a purified distillate comprising the halogenated alkoxyethane.

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24. The process of claim 22 or 23, wherein the amine is selected from ethylenediamine (1,2-diaminoethane), 1,3-diaminopropane, diethylenetriamine, di-n-propylamine, n-butylamine, ethanolamine, pyrrolidine, 2-aminobutane, and a mixture thereof.

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