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(54) **Title:** PROCESS FOR THE PREPARATION OF SUCRALOSE BY THE CHLORINATION OF SUGAR WITH TRIPHOS-
GENE (BTC)

(57) **Abstract:** In one embodiment of the invention a method to prepare sucralose-6-acylate through chlorinating sucrose-6-acylate by BTC in the process of sucralose preparation is disclosed. In this embodiment a Vilsmeier reagent is firstly prepared below 0 °C by dissolving BTC in DMF or in component solvent, containing DMF, toluene, dichloroethane, chloroform and carbon tetrachloride. Consequently, sucrose-6-ester was chlorinated by Vilsmeier reagent. BTC can also be dissolved in one or several organic solvent such as toluene, dichloroethane, chloroform and carbon tetrachloride, and added to a DMF solution of sucrose-6-acylate for chlorination. Sucralose was prepared through de-esterifying the obtained sucralosed 6-ester using sodium methoxide/methanol or sodium ethoxide/ethanol.



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AMENDED CLAIMS

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1. A method for the preparation of sucralose, comprising a step of chlorinating sucrose-6-ester using a chlorination composition comprising BTC.
2. The method of claim 1, wherein the chlorination composition comprises at least one organic solvent.
3. The method of claim 1, wherein the chlorination composition comprises at least one of DMF, cyclohexane, toluene, dichloroethane, chloroform, carbon tetrachloride, ethyl acetate, and a combination thereof.
4. The method of claim 1, wherein the chlorination composition comprises a Vilsmeier reagent.
5. The method of claim 4, wherein the Vilsmeier reagent is prepared by dissolving BTC in a DMF composition, and wherein the DMF composition comprises DMF and optionally, one or more organic solvents.

6. The method of claim 1, wherein the step of chlorinating sucrose-6-ester using a chlorination composition comprises:

dissolving BTC in one or more organic solvents; and

adding the BTC solution into a DMF solution of sucrose-6-ester.
7. The method of claim 6, wherein the organic solvent is selected from a group consisting of DMF, cyclohexane, toluene, dichloroethane, chloroform, carbon tetrachloride, and ethyl acetate.
8. The method of claim 1, wherein the mole equivalents of BTC:sucrose-6-ester is in the range of about 2.8:1 to about 3.5:1 .
9. The method of claim 1, wherein the chlorination step proceeds at a normal pressure or a reduced pressure.
10. The method of claim 1, further comprising:

cooling the chlorination composition to a temperature of below about 0 °C before contacting the chlorination composition with the sucrose-6-ester;

maintaining the temperature at under about 5°C as the chlorination composition is contacted with sucrose-6-ester to form a first mixture;

and

warming the first mixture to room temperature.

- 11, The method of claim 10, further comprising:

maintaining the first mixture at room temperature for about 3 hours to form a second mixture;

heating the second mixture to about 110⁰C; and

maintaining the second mixture at a temperature of about 110⁰C for about 3 hours.
12. A method for the preparation of sucralose, comprising a step of chlorinating sucrose-6-ester using a Vilsmeier reagent, wherein the Vilsmeier reagent is generated by dissolving BTC in DMF, and wherein the mole equivalents of BTC:sucrose-6-ester is in the range of about 2,8:1 to about 3.5:1 .