Claims

1. Encapsulated switchgear comprising a housing (4) defining an insulating space (6) and an electrical active part (8; 9, 11a, 11b, 11c) arranged in the insulating space (6), said insulating space (6) comprising an insulation medium, characterized in that the insulation medium comprises a dielectric compound having a boiling point of above -25°C and being a fluoroketone having from 4 to 12 carbon atoms.

2. Encapsulated switchgear according to claim 1, the dielectric compound having a boiling point of above -20°C, preferably above -5°C.

3. Encapsulated switchgear according to claim 2, characterized in that the fluoroketone has 6 carbon atoms.

4. Encapsulated switchgear according 3, characterized in that the fluoroketone is dodecafluoro-2-methylpentan-3-one.

5. Encapsulated switchgear according to any of the preceding claims, characterized in that at operational conditions the insulation medium comprises an insulation gas comprising a gaseous part of the dielectric compound, said gaseous part being in equilibrium with a liquid part of the dielectric compound.

~~6. Encapsulated switchgear according to claim 5,~~ characterized in that the insulation gas is a gas mixture, which further comprises a carrier gas.

7. Encapsulated switchgear according to claim 6, characterized in that the carrier gas comprises air or at least comprises one air component, in particular selected from the group consisting of carbon dioxide, oxygen and nitrogen.

8. Encapsulated switchgear according to any of the claims 5 to 7, characterized in that it comprises a receptacle (14) determined for comprising at least a portion of the liquid part of the dielectric compound comprised in the housing (4).

9. Encapsulated switchgear according to claim 8, characterized in that it further comprises collecting means (15; 12', 12a', 12b') for collecting at least a portion of the liquid part of the dielectric compound and transferring it to the receptacle (14).

10. Encapsulated switchgear according to any of claims 5 to 9, characterized in that it further comprises an indicator (18) for determining the amount of the liquid part of the dielectric compound in the insulating space (6), said indicator (18) being arranged in a space separate from the insulating space (6) and being connected with the receptacle (14).

11. Encapsulated switchgear according to any of claims 8 ~~to 10, the housing (4) comprising a transparent area~~

allowing the receptacle (14) and/or the indicator (18), respectively, to be viewed from the outside.

12. Encapsulated switchgear according to any of the preceding claims, the switchgear being a metal-encapsulated switchgear.

13. Encapsulated switchgear according to any of the preceding claims, the switchgear being a medium voltage encapsulated switchgear.

14. Encapsulated switchgear comprising a housing (4) defining an insulating space (6) and an electrical active part (8; 9, 11a, 11b, 11c) arranged in the insulating space (6), said insulating space (6) comprising an insulation medium comprising a dielectric compound having a boiling point of above -25°C, characterized in that at operational conditions the insulation medium comprises an insulation gas comprising a gaseous part of the dielectric compound, said gaseous part being in equilibrium with a liquid part of the dielectric compound.

15. Encapsulated switchgear according to claim 14, the dielectric compound having a boiling point of above -20°C, preferably above -5°C.

16. Encapsulated switchgear according to claim 14 or 15, characterized in that the dielectric compound is a fluoroketone having from 4 to 12 carbon atoms.

~~17. Encapsulated switchgear according to claim 16,~~ characterized in that the fluoroketone has 6 carbon atoms.

18. Encapsulated switchgear according 17, characterized in that the fluoroketone is dodecafluoro-2-methylpentan-3-one.

19. Encapsulated switchgear according to claim 18, characterized in that the insulation gas is a gas mixture, which further comprises a carrier gas.

20. Encapsulated switchgear according to claim 19, characterized in that the carrier gas comprises air or at least comprises one air component, in particular selected from the group consisting of carbon dioxide, oxygen and nitrogen.

21. Encapsulated switchgear according to any of claims 14 to 20, characterized in that it comprises a receptacle (14) determined for comprising at least a portion of the liquid part of the dielectric compound comprised in the housing (4).

22. Encapsulated switchgear according to claim 21, characterized in that it further comprises collecting means (15; 12', 12a', 12b') for collecting at least a portion of the liquid part of the dielectric compound and transferring it to the receptacle (14).

23. Encapsulated switchgear according to any of claims 14 to 22, characterized in that it further comprises an indicator (18) for determining the amount of the ~~liquid part of the dielectric compound in the~~

insulating space (6), said indicator (18) being arranged in a space separate from the insulating space (6) and being connected with the receptacle (14).

24. Encapsulated switchgear according to any of claims 21 to 23, the housing (4) comprising a transparent area allowing the receptacle (14) and/or the indicator (18), respectively, to be viewed from the outside.

25. Encapsulated switchgear according to any of claims 14 to 24, the switchgear being a metal-encapsulated switchgear.

26. Encapsulated switchgear according to any of claims 14 to 25, the switchgear being a medium voltage encapsulated switchgear.

27. Encapsulated switchgear comprising a housing (4) defining an insulating space (6) and an electrical active part (8; 9, 11a, 11b, 11c) arranged in the insulating space (6), said insulating space (6) comprising an insulation medium, characterized in that the insulation medium comprises a dielectric compound having a boiling point of above -20°C.

28. Encapsulated switchgear according to claim 27, the dielectric compound having a boiling point of above -5°C.

29. Encapsulated switchgear according to claim 27 or 28, characterized in that the dielectric compound is a fluoroketone having from 4 to 12 carbon atoms.

~~30. Encapsulated switchgear according to claim 29,~~ characterized in that the fluoroketone has 6 carbon atoms.

31. Encapsulated switchgear according 30, characterized in that the fluoroketone is dodecafluoro-2-methylpentan-3-one.

32. Encapsulated switchgear according to any of claims 27 to 31, characterized in that at operational conditions the insulation medium comprises an insulation gas comprising a gaseous part of the dielectric compound, said gaseous part being in equilibrium with a liquid part of the dielectric compound.

33. Encapsulated switchgear according to claim 32, characterized in that the insulation gas is a gas mixture, which further comprises a carrier gas.

34. Encapsulated switchgear according to claim 33, characterized in that the carrier gas comprises air or at least comprises one air component, in particular selected from the group consisting of carbon dioxide, oxygen and nitrogen.

35. Encapsulated switchgear according to any of the claims 32 to 34, characterized in that it comprises a receptacle (14) determined for comprising at least a portion of the liquid part of the dielectric compound comprised in the housing (4).

36. Encapsulated switchgear according to claim 35, ~~characterized in that it further comprises collecting~~

~~means (15; 12', 12a', 12b') for collecting at least a~~ portion of the liquid part of the dielectric compound and transferring it to the receptacle (14).

37. Encapsulated switchgear according to any of claims 32 to 36, characterized in that it further comprises an indicator (18) for determining the amount of the liquid part of the dielectric compound in the insulating space (6), said indicator (18) being arranged in a space separate from the insulating space (6) and being connected with the receptacle (14).

38. Encapsulated switchgear according to any of claims 35 to 37, the housing (4) comprising a transparent area allowing the receptacle (14) and/or the indicator (18), respectively, to be viewed from the outside.

39. Encapsulated switchgear according to any of the preceding claims, the switchgear being a metal-encapsulated switchgear.

40. Encapsulated switchgear according to any of the preceding claims, the switchgear being a medium voltage encapsulated switchgear.

41. Process for providing an encapsulated switchgear according to any of claims 5 to 26 and 32 by introducing a dielectric compound into the insulating space (6) of the switchgear, wherein the amount of the dielectric compound introduced is such that at operational conditions the insulation medium ~~comprises an insulation gas comprising a gaseous part~~

~~of the dielectric compound, said gaseous part being~~ in equilibrium with a liquid part of the dielectric compound.

42. Process according to claim 41, wherein the dielectric compound is introduced in liquid form, whereupon only a part of the dielectric compound evaporates into the insulating space (6).

43. Process according to claim 42, wherein the dielectric compound is introduced into the bottom part of the insulating space (6).

44. Use of a dielectric compound having a boiling point of above -25°C in an insulation medium for an encapsulated switchgear, in particular for a medium voltage encapsulated switchgear, said insulation medium comprising at operational conditions an insulation gas comprising a gaseous part of the dielectric compound, said gaseous part being in equilibrium with a liquid part of the dielectric compound.

45. Use according to claim 44 of a dielectric compound having a boiling point of above -20°C, preferably above -5°C.

Replaced by New Claims 1 to 45.

Claims

1. Encapsulated switchgear comprising a housing (4) defining an insulating space (6) and an electrical active part (8; 9, 11a, 11b, 11c) arranged in the insulating space (6), said insulating space (6) comprising an insulation medium, characterized in that the insulation medium comprises a dielectric compound having a boiling point of above -25°C and being a fluoroketone having from 4 to 12 carbon atoms.

2. Encapsulated switchgear according to claim 1, the dielectric compound having a boiling point of above -20°C, preferably above -5°C.

3. Encapsulated switchgear according to claim 2, characterized in that the fluoroketone has from 4 to 10 carbon atoms, more preferably from 4 to 8 carbon atoms, and most preferably 6 carbon atoms.

4. Encapsulated switchgear according to claim 3, characterized in that the fluoroketone is a perfluorinated ketone having the molecular formula $C_6F_{12}O$, and most preferably is dodecafluoro-2-methylpentan-3-one.

5. Encapsulated switchgear according to any of the preceding claims, characterized in that at operational conditions the insulation medium comprises an insulation gas comprising a gaseous part of the dielectric compound, said gaseous part being in equilibrium with a liquid part of the dielectric compound.

6. Encapsulated switchgear according to claim 5, characterized in that the insulation gas is a gas mixture, which further comprises a carrier gas.

7. Encapsulated switchgear according to claim 6, characterized in that the carrier gas comprises air or at least comprises one air component, in particular selected from the group consisting of carbon dioxide, oxygen and nitrogen.

8. Encapsulated switchgear according to any of the claims 5 to 7, characterized in that it comprises a receptacle (14) determined for comprising at least a portion of the liquid part of the dielectric compound comprised in the housing (4).

9. Encapsulated switchgear according to claim 8, characterized in that it further comprises collecting means (15; 12', 12a', 12b') for collecting at least a portion of the liquid part of the dielectric compound and transferring it to the receptacle (14).

10. Encapsulated switchgear according to any of claims 5 to 9, characterized in that it further comprises an indicator (18) for determining the amount of the liquid part of the dielectric compound in the insulating space (6), said indicator (18) being arranged in a space separate from the insulating space (6) and being connected with the receptacle (14).

11. Encapsulated switchgear according to any of claims 8 to 10, the housing (4) comprising a transparent area

allowing the receptacle (14) and/or the indicator (18), respectively, to be viewed from the outside.

12. Encapsulated switchgear according to any of the preceding claims, the switchgear being a metal-encapsulated switchgear.

13. Encapsulated switchgear according to any of the preceding claims, the switchgear being a medium voltage encapsulated switchgear.

14. Encapsulated switchgear comprising a housing (4) defining an insulating space (6) and an electrical active part (8; 9, 11a, 11b, 11c) arranged in the insulating space (6), said insulating space (6) comprising an insulation medium comprising a dielectric compound having a boiling point of above -25°C, characterized in that at operational conditions the insulation medium comprises an insulation gas comprising a gaseous part of the dielectric compound, said gaseous part being in equilibrium with a liquid part of the dielectric compound.

15. Encapsulated switchgear according to claim 14, the dielectric compound having a boiling point of above -20°C, preferably above -5°C.

16. Encapsulated switchgear according to claim 14 or 15, characterized in that the dielectric compound is a fluoroketone having from 4 to 12 carbon atoms.

17. Encapsulated switchgear according to claim 16, characterized in that the fluoroketone has from 4 to 10 carbon atoms, more preferably from 4 to 8 carbon atoms, and most preferably 6 carbon atoms.

18. Encapsulated switchgear according to claim 17, characterized in that the fluoroketone is a perfluorinated ketone having the molecular formula $C_6F_{12}O$, and most preferably is dodecafluoro-2-methylpentan-3-one.

19. Encapsulated switchgear according to claim 18, characterized in that the insulation gas is a gas mixture, which further comprises a carrier gas.

20. Encapsulated switchgear according to claim 19, characterized in that the carrier gas comprises air or at least comprises one air component, in particular selected from the group consisting of carbon dioxide, oxygen and nitrogen.

21. Encapsulated switchgear according to any of claims 14 to 20, characterized in that it comprises a receptacle (14) determined for comprising at least a portion of the liquid part of the dielectric compound comprised in the housing (4).

22. Encapsulated switchgear according to claim 21, characterized in that it further comprises collecting means (15; 12', 12a', 12b') for collecting at least a portion of the liquid part of the dielectric compound and transferring it to the receptacle (14).

23. Encapsulated switchgear according to any of claims 14 to 22, characterized in that it further comprises an indicator (18) for determining the amount of the liquid part of the dielectric compound in the

insulating space (6), said indicator (18) being arranged in a space separate from the insulating space (6) and being connected with the receptacle (14).

24. Encapsulated switchgear according to any of claims 21 to 23, the housing (4) comprising a transparent area allowing the receptacle (14) and/or the indicator (18), respectively, to be viewed from the outside.

25. Encapsulated switchgear according to any of claims 14 to 24, the switchgear being a metal-encapsulated switchgear.

26. Encapsulated switchgear according to any of claims 14 to 25, the switchgear being a medium voltage encapsulated switchgear.

27. Encapsulated switchgear comprising a housing (4) defining an insulating space (6) and an electrical active part (8; 9, 11a, 11b, 11c) arranged in the insulating space (6), said insulating space (6) comprising an insulation medium, characterized in that the insulation medium comprises a dielectric compound having a boiling point of above -20°C.

28. Encapsulated switchgear according to claim 27, the dielectric compound having a boiling point of above -5°C.

29. Encapsulated switchgear according to claim 27 or 28, characterized in that the dielectric compound is a fluoroketone having from 4 to 12 carbon atoms.

30. Encapsulated switchgear according to claim 29, characterized in that the fluoroketone has from 4 to 10 carbon atoms, more preferably from 4 to 8 carbon atoms, and most preferably 6 carbon atoms.

31. Encapsulated switchgear according to claim 30, characterized in that the fluoroketone is a perfluorinated ketone having the molecular formula $C_6F_{12}O$, and most preferably is dodecafluoro-2-methylpentan-3-one.

32. Encapsulated switchgear according to any of claims 27 to 31, characterized in that at operational conditions the insulation medium comprises an insulation gas comprising a gaseous part of the dielectric compound, said gaseous part being in equilibrium with a liquid part of the dielectric compound.

33. Encapsulated switchgear according to claim 32, characterized in that the insulation gas is a gas mixture, which further comprises a carrier gas.

34. Encapsulated switchgear according to claim 33, characterized in that the carrier gas comprises air or at least comprises one air component, in particular selected from the group consisting of carbon dioxide, oxygen and nitrogen.

35. Encapsulated switchgear according to any of the claims 32 to 34, characterized in that it comprises a receptacle (14) determined for comprising at least a portion of the liquid part of the dielectric compound comprised in the housing (4).

36. Encapsulated switchgear according to claim 35, characterized in that it further comprises collecting

means (15; 12', 12a', 12b') for collecting at least a portion of the liquid part of the dielectric compound and transferring it to the receptacle (14).

37. Encapsulated switchgear according to any of claims 32 to 36, characterized in that it further comprises an indicator (18) for determining the amount of the liquid part of the dielectric compound in the insulating space (6), said indicator (18) being arranged in a space separate from the insulating space (6) and being connected with the receptacle (14).

38. Encapsulated switchgear according to any of claims 35 to 37, the housing (4) comprising a transparent area allowing the receptacle (14) and/or the indicator (18), respectively, to be viewed from the outside.

39. Encapsulated switchgear according to any of the preceding claims, the switchgear being a metal-encapsulated switchgear.

40. Encapsulated switchgear according to any of the preceding claims, the switchgear being a medium voltage encapsulated switchgear.

41. Process for providing an encapsulated switchgear according to any of claims 5 to 26 and 32 by introducing a dielectric compound into the insulating space (6) of the switchgear, wherein the amount of the dielectric compound introduced is such that at operational conditions the insulation medium comprises an insulation gas comprising a gaseous part

of the dielectric compound, said gaseous part being in equilibrium with a liquid part of the dielectric compound.

42. Process according to claim 41, wherein the dielectric compound is introduced in liquid form, whereupon only a part of the dielectric compound evaporates into the insulating space (6).

43. Process according to claim 42, wherein the dielectric compound is introduced into the bottom part of the insulating space (6).

44. Use of a dielectric compound having a boiling point of above -25°C in an insulation medium for an encapsulated switchgear, in particular for a medium voltage encapsulated switchgear, said insulation medium comprising at operational conditions an insulation gas comprising a gaseous part of the dielectric compound, said gaseous part being in equilibrium with a liquid part of the dielectric compound.

45. Use according to claim 44 of a dielectric compound having a boiling point of above -20°C, preferably above -5°C.