CLAIMS:

1. A method of testing a fuse in apparatus for monitoring electrical insulation surrounding first and second electrical conductors in a cable, the fuse being connected to said conductors and the method comprising:

applying an electrical signal, with respect to a reference, to said fuse from a source;

obtaining a value for the resistance of said insulation with respect to said reference;

determining if said resistance value is greater than a fuse test resistance threshold and, if it is, causing application of the signal to cease; and

monitoring the decay of said signal to determine if the time for it to decay below a set value exceeds a set time limit, indicative of the fuse being satisfactory, or is less than said limit indicative of the fuse being blown.

2. A method according to claim 1, wherein said cable comprises an umbilical cable of an underwater well control system.

3. A method according to claim 1 or 2, wherein said value for the resistance of said insulation with respect to said reference is obtained using a measurement of the voltage applied to said fuse with respect to said reference and a measurement of the current through said fuse, taking into account the effective resistance of means for measuring said voltage and the effective resistance of means for measuring said current.

4. A method according to any preceding claim, wherein said fuse is connected to each of said conductors by signal splitting means comprising first and second resistors.

5. A method according to claim 4, wherein obtaining said value for the resistance of said insulation with respect to said reference takes into account the effective resistance of said signal splitting means.

6. A method according to any preceding claim, wherein said reference is earth.

7. Apparatus for monitoring electrical insulation surrounding first and second electrical conductors in a cable, the apparatus including a fuse for connection to said conductors, the apparatus comprising:

means for applying an electrical signal, with respect to a reference, to said fuse from a source;

means adapted for obtaining a value for the resistance of said insulation with respect to said reference;

means adapted for determining if said resistance value is greater than a fuse test resistance threshold and, if it is, causing the application of the signal to cease; and

means adapted for monitoring the decay of said signal to determine if the time for it to decay below a set value exceeds a set time limit, indicative of the fuse being satisfactory, or is less than said limit, indicative of the fuse being blown.

8. Apparatus according to claim 7, adapted so that said value for the resistance of said insulation with respect to said reference is obtained using a measurement of the voltage applied to said fuse with respect to said reference and a measurement of the current through said fuse, taking in account the effective resistance of means for measuring said voltage and the effective resistance of means for measuring said current.

9. Apparatus according to claim 7 or 8, wherein said fuse is connected to each of said conductors by signal splitting means comprising first and second resistors.

10. Apparatus according to claim 9, adapted so that obtaining said value for the resistance of said insulation with respect to said reference takes into account the effective resistance of said signal splitting means.

CLAIMS

1. A method of testing a fuse (12) in apparatus for monitoring electrical insulation surrounding first and second electrical conductors (3,4) in a cable (2), the fuse being connected to said conductors and the method comprising:

   applying an electrical signal, with respect to a reference, to said fuse from a source (1):

   obtaining a value for the resistance of said insulation with respect to said reference;

   determining if said resistance value is greater than a fuse test resistance threshold and, if it is, causing application of the electrical signal to cease; and

   monitoring the decay of said electrical signal to determine if the time for it to decay below a set value exceeds a set time limit, indicative of the fuse being satisfactory, or is less than said limit indicative of the fuse being blown.

2. A method according to claim 1, wherein said cable (2) comprises an umbilical cable of an underwater well control system.

3. A method according to claim 1 or 2, wherein said value for the resistance of said insulation (8) with respect to said reference is obtained using a measurement of the voltage applied to said fuse (12) with respect to said reference and a measurement of the current through said fuse, taking into account the effective resistance of means (15) for measuring said voltage and the effective resistance of means (11) for measuring said current.

4. A method according to any preceding claim, wherein said fuse (12) is connected to each of said conductors (3,4) by signal splitting means comprising first and second resistors (13,14).

5. A method according to claim 4, wherein obtaining said value for the resistance of said insulation (8) with respect to said reference takes into account the effective resistance of said signal splitting means (13,14).

6. A method according to any preceding claim, wherein said reference is earth.

7. Apparatus for monitoring electrical insulation (8) surrounding first and second electrical conductors (3,4) in a cable (2), the apparatus including a fuse (12) for connection to said conductors, the apparatus comprising:

means (10) for applying an electrical signal, with respect to a reference, to said fuse from a source (1);

means (11,12,15,16) adapted for obtaining a value for the resistance of said insulation with respect to said reference;

means (16) adapted for determining if said resistance value is greater than a fuse test resistance threshold and, if it is, causing the application of the electrical signal to cease; and

means (16,17) adapted for monitoring the decay of said electrical signal to determine if the time for it to decay below a set value exceeds a set time limit, indicative of the fuse being satisfactory, or is less than said limit, indicative of the fuse being blown.

8. Apparatus according to claim 7, adapted so that said value for the resistance of said insulation (8) with respect to said reference is obtained using a measurement of the voltage applied to said fuse (12) with respect to said reference and a measurement of the current through said fuse, taking in account the effective resistance of means (15) for measuring said voltage and the effective resistance of means (11) for measuring said current.

9. Apparatus according to claim 7 or 8, wherein said fuse (12) is connected to each of said conductors (3,4) by signal splitting means comprising first and second resistors (13,14).

10. Apparatus according to claim 9, adapted so that obtaining said value for the resistance of said insulation (8) with respect to said reference takes into account the effective resistance of said signal splitting means (13,14).