Claims

1. A fully dry non-metal flame-retardant and fire-resistant optical cable, comprising:

an armor layer (2), in which an optical fiber channel (20) is formed, and the armor layer (2) is made of a ceramic glass fiber material;

an optical unit (1), which is provided in the optical fiber channel (20); and

a flame-retardant layer (3), which covers the outside of the armor layer (2);

wherein the optical unit (1) comprises:

a central reinforcing member (10);

a plurality of optical fiber units (11), the plurality of optical fiber units (11) are distributed at uniform intervals along an outer circumferential direction of the central reinforcing member (10); and the optical fiber unit (11) comprises a loose tube (110) and a plurality of optical fibers (111) embedded in the loose tube (110);

wherein the optical fiber unit (11) further comprises a first heat insulation layer (112), and the first heat insulation layer (112) covers the outside of the loose tube (110);

wherein the first heat insulation layer (112) is made of ceramic polyolefin or ceramic vulcanized silicone rubber;

wherein the fully dry non-metal flame-retardant and fire-resistant optical cable further comprises a second heat insulation layer (4), and the second heat insulation layer (4) is arranged between the optical unit (1) and the armor layer (2);

the second heat insulation layer (4) is made of glass fiber or carbon fiber.

2. The fully dry non-metal flame-retardant and fire-resistant optical cable according to claim 1, wherein the fully dry non-metal flame-retardant and fire-resistant optical cable further comprises a third heat insulation layer (5), and the third heat insulation layer (5) is arranged between the armor layer (2) and the flame-retardant layer (3).

3. The fully dry non-metal flame-retardant and fire-resistant optical cable according to claim 2, wherein the third heat insulation layer (5) is made of ceramic polyolefin or ceramic vulcanized silicone rubber.

4. The fully dry non-metal flame-retardant and fire-resistant optical cable according to claim 2, wherein the fully dry non-metal flame-retardant and fire-resistant optical cable further comprises a fourth heat insulation layer (6), and the fourth heat insulation layer (6) is arranged between the third heat insulation layer (5) and the flame-retardant layer (3).

5. The fully dry non-metal flame-retardant and fire-resistant optical cable according to claim 4, wherein the fourth heat insulation layer (6) is made of one of mica tape,

polyimide composite tape, basalt fiber reinforced tape and vulcanized silicon rubber composite tape.