A.10.3. Gaine à très haute résistance aux agents extérieurs pour des câbles de moyenne tension

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Résumé : Le Comité Espagnol de distribution d'UNESA (UNIDAD ELECTRICA, S.A.), a recommandé à ses affiliés de faire tout leur possible pour réduire les dommages survenus aux câbles à cause des agents externes (coups, écrasements, coupures, abrasions, crevasses...).

Les gaines standard en PVC-ST2, utilisées pour les câbles Moyenne Tension (M.T.), ont une faible résistance à ce type d'agents externes.

Iberdrola, conscient du problème, a demandé à ses principaux fournisseurs une solution technique pour son réseau de distribution M.T. Ceci a conduit à développer un nouveau mélange pour éviter le mieux possible, les effets négatifs de ces agents externes.

Le but du présent document est d'illustrer d'une façon claire et objective les caractéristiques comparées à ce nouveau mélange et du mélange standard PVC-ST2, en y incluant, pour celui-ci, son aspect un peu négatif vis-à-vis de l'environnement.

A.10.3. Medium voltage high resistance to external agents cable sheath

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Abstract - The Spanish distribution committee from UNESA (UNIDAD ELECTRICA, S.A.), recommend to their affiliates to extreme the efforts in order to reduce the cables failures due to external agents (bumps, flattening, cutting, abrasion, flaws,.....). The general purpose PVC-ST2 cable sheath, used in M.V. cables has a poor resistance to that kind of external agents. Iberdrola being conscious on that problem asked to their main suppliers a technical solution for his M.V. distribution net. That's why Cables Pirelli, S.A., has developed a new compound to be used to avoid as much as possible the negative effects of these aggressive agents. The aim of the paper presented is to illustrate in a clear and objective manner the differential characteristics of this new compound versus standard PVC-ST2 compounds included its minor environmental aggression.

The national Distribution Committee from UNESA, (UNIDAD ELECTRICA, S.A.), prepares an annual failures statistic report about underground M.V. cables. That report analyse the Spanish Electrical Companies cable from some points of view: cable type, failure origine, supplier, year, proprietary, etc. In the conclusions of these reports during the last years, UNESA makes emphasise to cable damage due to **"external agents"** (≈ 50% on total) before, during and after M.V. (DHV, RHV) distribution cable lines installation, and recommends insistently to increase the efforts in order to reduce that kind of damages. Analysing these **"external agents"** we can summarise them as:

- Bumps when moving the original cable reels.
- Flattening of cutting - off the cables by rolling-machines.
- Incisions and/or cutting by falling down contusive objects on the cable.
- Bad installation of electrical cable lines due to excessively short curve's radius.
- Important sheath abrasion when dragging along the cable, that can cause water penetration if holes or cracks have been produced.
- Water absorption along the cable sheath, due to flaws or by shelf-absoption when standard PVC compounds are used.