Abstract: Plastic recycling will be a major stake in the future for the cable manufacturers. The landfilling cost of cable scraps increases drastically year after year, as the volume capacity to landfill decreases (new regulations and constraints). New technical solutions should be find in order to reduce the cable scraps amount. Up to now, the efforts have been focused on the metal/polymer separation. The main problem of the plastic recycling concerns the diversity of the polymers used in cable design which are not compatible. The first step of this study was to determine the way to separate polar and non polar polymers. We tested a triboelectric separator and obtained interesting results with pure polymers, crosslinked polymer and filled thermoplastics. The target is to obtain polymer batches with sufficient properties to be reused in the industrial application. Nexans is working as partnership with Nexans Rips (Nexans recycling subsidiary) VanTech (Hamos), Ademe.

Keywords: landfilling, crosslinked PE, scraps.

1- Introduction:

600 000 tons of cable per year are manufactured in France. This lead to 70 000 tons of cable scraps. The grinding is the current solution to separate copper from the different polymers used in cable design. The goal of this study is to recycle then to valorize blends of polymers coming from energy and telecom cables and scraps generation. Two types of problems should be solved:

- Separation polymer/metal
- Separation polymer/polymer.

Concerning polymer/metal separation with electrostatic separator, 5% of amount residue have been found with polyethylene coming from telecom cable, this amount residue is reduced to 0,5% for energy cables (PVC/PE blends). This results is related to the cable nature. Telecom cables have thick sheathing and the grinding don’t allow to separate easily the metal from the polymer. The removing of residual metallic particules can be performed by flotation or by using auto-cleaning filter during extrusion.

Regarding the separation polymer/polymer, it is more difficult to perform. The difference of density between polymer and metal are used. This difference is lower than filled polymer and the separation is sensitive. The compatibilisation of well defined polymer blends composition is a way to develop the re-use polymer scraps. In a first way, polymer/polymer separation could be perform through a triboelectric separator in order to obtain...