

## Q & A for Materials

Question by **Mr. S. Dua**, Industrial Cables (India) Ltd.

My question is addressed to Prof. Gedde. You have suggested the conclusion that perhaps PE is the product of the future as compared to PVC. I have two questions on this particular aspect. The cost aspect is very important to make the product viable, technical and commercial. My first question related to that is: can you throw some light on process costs for cross linking? Has any study been made to compare the process costs of PVC and the very high process costs of XLPE, leaving aside the special eco friendly products.

**Prof. Gedde** replies: To reduce process cost the solution would be to make the material more reactive. As I showed, there is the possibility to add DIENE's to the product. Today for the high pressure process that is already done. However even better ways probably can be found by applying the Single Side technology. That will reduce the costs with the rate of vulcanization: you can run the process with a shorter line or the same line with a higher speed. On the other side, the material should not be too reactive, because that would cause degradation. Comparing vulcanization by peroxide and by radiation, the latter has a limitation on penetration depth. Chemically the process are quite similar, so application of DIENE's may help to some extent. Radiation will be applied in the amorphous stage, while peroxide is in the liquid stage. I cannot comment on the economic aspects of your questions.

**Mr. Larrie Rose**, VP Sales & Marketing Belden Wire & Cable Co.

Directed to Mr. Miele: You expressed that continuous consolidation is taking place in the industry. My first question is: why do you expect that to continue? The second then follows, what are the implications of that?

**Mr. Arthur Miele** replies: Thinking in terms of exploration, in terms of cost to bring up new mining the amounts are in the order of 1 B USD. The new capacity is to be found in areas such as Africa, China, or Russia, that is areas with some additional risk. In my view consolidation will allow a larger base and that in turn create the ability to take on such very big projects in terms of funding and of assuring that any problems along the way will not have to much impact on the company. Implication thus is to enable the industry to go forward and fulfil future demand on a low cost competitive capability.

**Mr. Bernhard Althaus**, ABB Energy Cables.

A question to Prof. Gedde: What can you add to the benefits, for us as cablemakers, of XLPE material made with the Single Side technology?

**Prof. Gedde answers:** Added is reactivity by use of DIENE mono-mers. The reaction will be much better controlled compared to the traditional method. In some years time also polar mono-mers can be added, to inhibit treeing, to enhance solubility of also bonded antioxidants, to increase material stability. This will be possible in the polymerization reactors, promising better properties for a low cost.

**Mr. John Segal**, CRU International.

Question to Mr. Miele: You indicated that copper producers may cut production next year. Given that copper markets are fairly transparent so that prices and stock information is available on a daily basis can I ask why is it that the copper producers take so much time to align supply and demand?

**Mr. Arthur Miele** replies: Interesting question indeed. In the past we used to blame the government operated companies, saying that earning hard currency and employment prevailed. First, our industry has a production mentality. Second, it is quite costly to put a mine on care and maintenance; in some cases tens of millions of dollars. Clearly the industry will have to anticipate and be quicker to make such decisions, before the accumulation of inventories. Already in the late 90's the reaction was faster than in the early 80's, but still more anticipation is needed to take out the volatility. Swing production as such has been looked at, in order to bring on production as needed but is not in place today.

**Mr. Toshi Takashima**, session chairman, thanks the speakers for their excellent presentations and the audience for their participation. He closes the session.