Monsanto

FROM (NAME & LOCATION) D. Wood, Brussels

DATE : 14th November, 1967

SUBJECT :

REFERENCE :

cc: H. S. Bergen - St. Louis
G. R. Buchanan - St. Louis
C. R. Coleman - Ruabon
R. H. Munch - St. Louis
W. R. Richard - St. Louis
P. J. A. Marsh - London

TO : P. G. Benignus - St. Louis

Dear Paul :

I should like to comment on your letter dated 30th October addressed to Peter Marsh concerning the use of dodecylbenzene in cables. We have been keeping an eye on this market for some years in the U.K. and the situation is not really significantly changed now.

The people who really pushed the use of dodecylbenzene in high voltage cables were Pirelli, in Italy. Their interest arose because the taxes that they had to pay on cable oils were exceptionally high, whereas the taxes on DDB as a synthetic material were very much lower. They therefore developed certain technical arguments regarding the use of DDB which got them type approval for high voltage cables in Italy. We were advised by many of the U.K. cable manufacturers that the comparative work carried out by Pirelli used oils which were regarded in the cable industry as not being very good quality cable oils. Incidentally as soon as the Italian government found out what Pirelli were up to they increased their tax on DDB in cables, removing most of the incentive for Pirelli to use the material, but by this time Pirelli had produced so many arguments for the use of DDB that they could hardly back down and revert to oil.

Turning to the U.K. Pirelli General produce DDB filled cables which have C.E.G.B. approvals. They initially played around with the hard grades based on Bio-stable DDB, but more lately have used the soft grades based on Bio-degradable DDB. They are the only manufacturer of cables in the U.K. who are actually using DDB in high voltage cable for the C.E.G.B.

We have reviewed the use of DDB almost annually with BICC, the largest U.K. manufacturer and to up-date our information I spoke to Josh Reynolds, and he advises me that BICC are still using no DDB.

One of the technical benefits claimed by Pirelli was the fact that DDB cables can be operated at higher temperatures, i.e. above 100°C. Against this all the other cable manufacturers argue that it is desirable to operate cables at about 85°C and the oil

DSW 201939

EXLS/C-55/11-66/7

will certainly handle the odd peak temperature of 90°C - 100°C due to temporary overload. They state it is very bad practice to run the cables intentionally at these very much higher temperatures, that Pirelli suggest, because of the much greater I^2R losses involved in transmission.

Total production of Bio-degradable type DDB in the U.K. is probably well over 100,000 tons from Shell and Grange. The total potential market in the U.K. for cable impregnation is probably about 2,000 tons. Although the DDB producers have reduced their prices recently, their prices are still so significantly greater than those of cable oil, that their use is not contemplated by BICC. This company do not see any benefits of DDB as opposed to oil which would merit any premium price over that of cable oil. For costing purposes Reynolds is giving me an up to date high grade cable oil price and I will send this to you.

When main system voltages go up to 750 KV, cable manufacturers will need impregnants of even lower viscosity than they have today. Reynolds estimated 6 - 7 centistokes at 25°C. To his mind this made DDB or blends of DDB and oil even more unlikely to be used in the future.

We shall continue to keep this matter under review and will certainly not lose any opportunity to make use of our DDB position, if there is either a greater market acceptance of this product and if we have an economic poistion against the domestic competition in the U.K.

Best wishes.

DW:gb

D. Wood.

P.S. Josh Reynolds asked me to send you his regards and incidentally he seems to be more than a little annoyed with Ed Rarb at the present time.

DSW 201940