Monsanto

refrigerator gaskets

FROM (NAME—LOCATION—PHONE) J. H. Orem - Galt Labs - 1730

DATE : June 6, 1978

SUBJECT : MAGNETIC CLOSURES FOR REFRIGERATORS

REFERENCE :

cc: J. A. Cannon
D. E. Emge
J. J. Juliano - 5050
[redacted]

TO : A. Zelesnikar
5050

Your customer's formulation is:

PVC	100
Plasticizer	90
Barium Ferrite	1420
Ba/Cd (solid)	2

This material is dry blended in a Henschel type mixer using the following procedure.

1. Add PVC and heat to 110°C.,
2. Add the barium ferrite,
3. Add the solid barium cadmium stabilizer,
4. Then add the plasticizer.

Materials are mixed to the dry point and then dropped. Dry point is defined as "balling point"; that is, the point where the blend is tacky and can be formed into a ball.

Balling point times are:

ESO	1.5 minutes
Santicizer 601	4.0 minutes

When these blends are extruded, they find Santicizer 601 requires 30% more amperage and output is reduced 10% compared to ESO.

We have not worked with high barium ferrite formulations in recent years. However, I still find it difficult to believe S-601 will not dry blend or extrude faster than epoxy soya oil. Is it possible they missed the balling point for Santicizer 601 because it happens so quickly?

Antonio, I have talked with technical people at Ferro's Ottawa Chemical Div. who make barium ferrite. In the U.S., the magnetic closures are not made with PVC but with CPE (chlorinated polyethylene) or Hypolon, because PVC is too hard and more difficult to process. A high level of calcium stearate, for lubrication, is used; this may be 1 to 2% of the total formulation. Barium ferrite has a very high density, 5.2g/cc, and no oil absorbing characteristics. During mixing, it will cause temperatures to increase to over 180°F. It may help to mix plasticizer and barium ferrite together and then add this mix to the resin. Barium ferrite content should be a maximum of 88% to achieve maximum magnetic energy.

DSW 587110

The sales engineer at Ferro and I cannot understand why Santicizer 601 does not mix and extrude more easily than ESO. When PVC and Santicizer 601 are mixed too long in the Henschel and/or at too high a temperature, the extrusion characteristics are hurt. With a benzyl phthalate, one must recognize its strong solvating power and adjust mixing procedures.

J. H. Orem

JHO/gls

P.S. Ferro sold 20 thousand pounds of barium ferrite to Cardanali in March.

JHO

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