AKROCHEM CORPORATION
255 Fountain Street Akron, Ohio 44304-1991
330-535-2100 ◆ 800-321-2260 ◆ Fax 330-535-8947

CHEMICAL DISPERSIONS
-MASTERBATCHES-

AKROFORM® DELTA PM

A Competitive Alternative to TDEC

DESCRIPTION:

With the drastic increase in price, limited availability and possible health hazards of TDEC (tellurium diethyldithiocarbamate), a study was conducted to look at alternative chemistry's that could be used as a technical offset for TDEC. TDEC is an ultra-accelerator used primarily to boost cure rates in EPDM and Butyl elastomer systems.

The work in this study was done in EPDM. Of the group of ultra-accelerators tested, the best possible replacement for TDEC in EPDM was Delta PM. Delta PM is not an exact replacement for TDEC; as can be seen in the rheometer chart below. The cure activity of Delta PM is very close to the cure curve of TDEC. This, coupled with the limitation of TDEC mentioned above, make Delta PM a viable alternative. Delta PM's chemistry is not based on Tellurium; therefore the health hazards associated with TDEC do not extend to Delta PM.

AKROFORM Delta PM is presented in a clean and safer handling form as a masterbatch. Anyone familiar with AKROCHEM knows the advantages of using chemical masterbatches or cure blends for better dispersion, and more uniformity (reducing hot spots) of the rubber compound. The active content of Delta PM is 80% in a binder. It is in the form of green cylindrical pellets.

APPLICATIONS:

Delta PM can be used where rapid cure rates are required such as injection molding. Typical dosages range from 0.1 to 1.0 phr.

TYPICAL PROPERTIES:

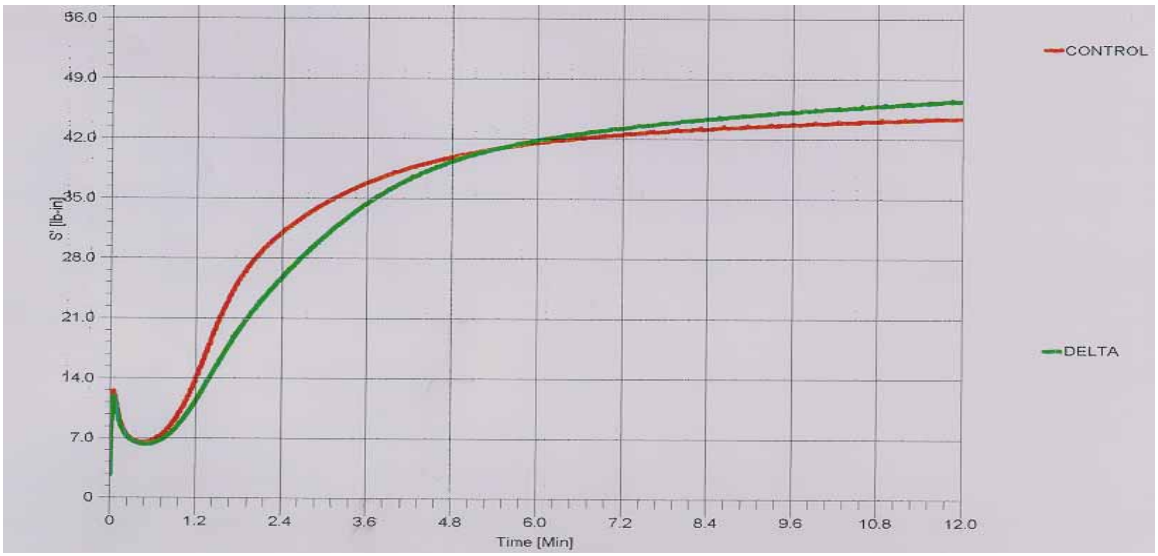
PROPERTY	DELTA PM	TDEC
Appearance	Green Pellets	Orange to Yellow powder
Active Material Content, %	80	96 – 99
Melting Range, ^{o}C	- - -	112 – 122
Tellurium Content, %	0	16.5 – 19.0
Specific Gravity	1.63	1.44

COMPOUND:

Chemical	phr	
	Control	**Delta PM**
EPDM	100.00	100.00
N550	50.00	50.00
Naphthenic oil	35.00	35.00
Zinc Oxide	5.00	5.00
Stearic Acid	1.00	1.00
MBT	1.50	1.50
Sulfur	1.50	1.50
TDEC 100% active	0.75	- - -
Delta PM 80% active	- - -	0.94*

* phr level adjusted to same activity as TDEC.

RHEOMETER DATA:



	S' Max lb-in	S' Min lb-in	TC 2 Min:Sec	TC 50 Min:Sec	TC 90 Min:Sec
TDEC (Control)	44.42	6.57	0.42	1.48	5.16
DELTA PM	46.48	6.35	0.46	2.28	6.28

While the information given above is believed to be reliable, no responsibility can be accepted for the results obtain. Akrochem points out that some of the processes to which references are made may be patented.

This proprietary Dithiocarbamate containing blend is designed as a ultra-accelerator for EPDM rubber vulcanization.

All constituents have LD50 values greater than 2000 mg/kilo limit and accepted by the E.E.C. as non-hazardous. This proprietary blend does not contain any of the following: TMTD, Thioureas or Tellurium based chemicals. Delta PM is presented in color coded, polymer-bound cylindrical pellets.