UNION CARBIDE

INTERNAL CORRESPONDENCE

CHEMICALS DIVISION

P. O. BOX 8004
SOUTH CHARLESTON WEST VIRGINIA 25303

To (Name) Mr. D. Barbieri

Company

Location FOUND BROOK OFFICE

Date October 28, 1966

Originating Dept.

Answering letter date

Copy to
Dr. W. B. Ackart - BB
Dr. F. E. Bailey, Jr. - SC
Mr. W. H. Bauer - Tarrytown
Dr. J. J. Brezinski - SC
Mr. W. D. Bush - TC
Mr. F. D. Dexter - NY
Dr. A. W. Downes - NY
Mr. J. F. Erdmann - TC
Mr. C. R. Field - NY
Mr. N. A. Gimber - TC
Mr. H. C. Gunst - BB
Mr. G. G. Himmler - BB
Mr. J. L. Hockersmith - TC
Mr. P. T. McCoy - Tarrytown
Mr. D. E. Richardson - TC
Mr. J. R. Wilkinson - NY
Dr. N. L. Zutty - BB

Subject QSOM-7 Specification Proposal dated October 21, 1966

Dear Mr. Barbieri:

The proposed QSOM-7 specifications are not acceptable to production in the area of inherent viscosity, ethylene content, and melt viscosity. Most people agree that there is interaction between these three variables and theoretically definition of two defines the third. We have analyzed five production blend samples and, based on those results, we are being asked to narrowly define the resin based on two admittedly shaky analytical methods; i.e., determination of ethylene content and melt viscosity by Brabender Plastigraph.

The inherent viscosity determination is reliable, and the range of 0.96 - 1.00 is necessary unless we plan to market two grades of resin—one with 0.96 - 0.98 and a second 0.98 - 1.00.

The ethylene content range 1.3% $\pm$ 0.2 is acceptable. This is a change from the original production proposal.

The apparent melt viscosity range 1750 ± 100 is not acceptable as a specification. A melt viscosity range goal can certainly be listed, the determination made, and we will try to reach the goal. The melt viscosity apparatus is relatively new, and its inherent errors and faults yet to be fully understood. QSOM-7 is a new resin and similar comments apply.

Very truly yours,

R. N. Wheeler, Jr.

RNWJr/ra

UNION CARBIDE INTERNAL C RRE P NDENCE

PLASTICS DIVISION RIVER ROAD, BOUND BROOK, NEW JERSEY

To (Name) Mr. R. N. Wheeler, Jr.
Company UCC - Chemicals Division
Location So. Charleston, W. Va.

Date October 21, 1966

Originating Dept.

Answering letter date

Subject QSOM-7

RECEIVED
OCT 26 1966
R. N. Wheeler

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A proposed Manufacturing Specification and a Product Standard for QSOM-7 are submitted herewith. These are based on recommendations mad by Messrs. Wheeler, Bush, McCoy, and Zutty. Your attention is direct d to the following points:

(a) In anticipation of early approval, this product is identified as QSOM-7. It should be noted though that it was agre d earlier that the designation 7 would be used only for FDA approved products. We are advised by Dr. Ackart that, although FDA approval is excepted, it has not yet been obtained.

(b) It is agreed that ethylene content must be defined sooner or later and the limits proposed are those recommended by Texas City. However, it also has been suggested that ethylene content remain on a DAR basis until more experience has been acquired. Dr. Zutty objects to this. A decision on that point is requested.

(c) It is Dr. Zutty's opinion that a .04 range for inher nt viscosity is too broad to maintain the desired melt viscosity. He recommends that this range certainly not exceed .03 and preferably be kept within .02 if possible.

UCC
039496

(d) Apparently a method is lacking for measuring ethylen content but several are available for measuring free vinyl chloride so that being used should be identified.

Early replies are requested since we understand that marketing of this resin in the near future is planned.

D. Barbieri

DB:jal

P R O P O S E D

POLY (VINYL CHLORIDE) RESIN

QSOM-7

		Specification Limits	Meth d
1	Particle Size % by weight through USBS Sieve No. 40 USBS Sieve No. 200 Median particle size, microns	 100 minimum 5, maximum 140 - 200	WC-7-F
2	Heating Loss, 45 minutes at 105°C	0.5 per cent by weight, maximum	WC-160-H
3	Ethylene Content	1.3 ± 0.2	Pending
4	Free Vinyl Chloride	DAR	Pending
5	Inherent Viscosity, 0.2 gm of resin per 100 ml of cyclohexanone at 30°C	0.96 to 1.00	WC-31-B-4 ASTM-D 1243 Meth d A
6	Apparent Melt Viscosity	1750 ± 100 mg/sec	WC-327-B
7	Foreign Matter, slurry rating	3, maximum	WC-15-P-1
8	Clear Fisheye Test	4, maximum	Pending
9	Hard Resin Particles, 17.5 mils 10.0 mils	 0, maximum 100, maximum	WC-15-K-2
10	Apparent Density, lbs./ft.^{3}	28 - 32	WC-2-B
11	Resin Dry Flow, seconds/400 cc	4.0 maximum	ASTM D 1755-60T
12	Initial Color Mill Test	100, minimum	WC-163-C
13	Plasticizer Sorption, parts DOP/100 parts resin	90, minimum	ASTM-D-1755-60T WC-28-A

(over)

14	Dry Blend Trial time to dry, minutes temperature, °C	5.0 maximum	WC-324-A
15	ASTM Conductance	DAR	WC-51-T

PROPOSED PRODUCT STANDARD

QSOM-7

October 21, 1966

"BAKELITE" VINYL RESIN QSOM-7

DESCRIPTION - QSOM-7 is a medium molecular weight poly (vinyl chlorid) resin designed for dry-blending, calendering, extrusion, and molding applications. It leads to lower melt viscosity in rigid or non-rigid compounds, and hence faster production or output rates of finished products. QSOM-7 has excell nt initial color and ultimate stability, is commercially free of fish-eyes, and has very good dry-blending characteristics. It meets the requirements of ASTM Specification D1755 for Type GP-4-1534.

PROPERTY	TEST METHOD	TYPICAL VALUE
Vinyl Chloride, %	WC-294-D	99
Inherent Viscosity 0.2 gm in cyclohexanone at 30°C	D1243 Method A	0.98
Heating Loss, %	WC-160-H	0.3
Apparent Density lbs./cu.ft., approximate	WC-2-3	30
Plasticizer Sorption parts DOP/100 parts resin	D1755-60T	98
Resin Dry Flow, seconds/400 cc	D1755-60T	3.2
Particle Size % by weight through:	WC-7-F	
USBS Sieve No. 40		100
USBS Sieve No. 200		3
Median particle size, microns		170
Initial Color Mill Test	WC-163-C	100
Hard Resin Particles (17.5 mil)	WC-15-K-2	Nil
Dry Blend Trial - minutes to dry	WC-324-A	4
Contamination (slurry rating)	WC-15-P-1	2

TESTING METHODS The properties described in this Plastics Product Standard are measured in accordance with current issues of the specified testing methods. Methods of the American Society for Testing Materials are identified by the prefix letter "D". Standard Testing Methods of Union Carbide Plastics Division are identified by the prefix letters "WC". Details of the "WC" - methods are available on request.

PACKAGING The standard package for BAKELITE Vinyl fabricating resins is a four-ply multiwall Kraft paper bag containing 50 pounds of material. If desired these resins also can be supplied in hopper cars containing a minimum of 100,000 pounds.

LABELING All containers of BAKELITE Vinyl fabricating resins are plainly marked with the product number, lot number, and net weight. Shipments will be so addressed as to assure complete delivery to the purchaser.