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NEW PRODUCT DATA

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"BAKELITE"^(R) LOW-FUSING VINYL DISPERSION RESIN QYLF

PRODUCT DESIGNATION

Vinyl Dispersion
Resin QYLF

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Description

BAKELITE Vinyl Dispersion Resin QYLF is a new addition to the family of dispersion resins available from Union Carbide Corporation, Plastics Division.

The gloss and clarity of fused films based on QYLF are exceptionally good. This enables the formulator to obtain good clear films or castings without the usual haze, and to prepare pigmented plastisols and organosols with the true depth of gloss normally associated with other resinous materials. However these plastisols and organosols do not have the elastomeric type flexibility and toughness of high molecular weight dispersion resins.

The low temperature gelation characteristics of QYLF enable the formulator to prepare compounds which will not drip or have excessive flow as the compound is going through the curing cycle.

The storage stability of plastisols based on QYLF is excellent despite its ability to fuse at lower temperatures than conventional grades of dispersion resins.

The heat stability characteristics of QYLF are excellent. QYLF exhibits heat stability characteristics comparable or superior to most general-purpose grades of higher fusing dispersion resins.

Tensile strength of films based on QYLF develops rapidly from 275°F., where it acquires approximately 60-65% of the ultimate strength. Maximum strength of 2800 psi is developed at higher temperatures.

Properties

BAKELITE Vinyl Dispersion Resin QYLF is a high molecular weight vinyl chloride polymer. The following typical properties are:

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Union Carbide has highly trained engineers in the field ready to serve you, and these technical representatives will be glad to discuss individual problems.

Inherent viscosity (ASTM D-1243-58T procedure A)	1.35
Brookfield viscosity, poises, 20 rpm - 1 day	75
3 days	95
Severs viscosity, 100 psig, poises	175
Gelation temperature, °C.	64
Gloss, Gardner 60°	68

The formulations for the above properties, except inherent viscosity, were based on a plastisol containing 56 parts FLEXOL plasticizer DOP, 2 parts "Mark" KCB and 2 parts FLEXOL epoxy ester EP-8 per hundred of QYLF resin.

Plastisols at 60 parts of plasticizer per hundred of QYLF have high tear strength; 340 pound-inches, compared to 325 pound-inches for conventional grades of dispersion resin.

Clear and pigmented films based on QYLF exhibit excellent color, color retention and clarity. The stabilizing system recommended for this resin is a synergistic mixture of barium-cadmium-zinc in combination with an epoxy product.

The anti-fogging characteristics of QYLF are excellent. This requirement is especially useful in interior automotive applications where this test is a mandatory requirement for most interior trim components.

The water blush resistance of plastisols based on QYLF is excellent.

QYLF can be combined with other BAKELITE dispersion resins such as QYNV, QYKV, QYNM, QYOV.

Dispersion Properties

Plastisols and organosols based on QYLF exhibit good viscosity stability properties. Figure 1 lists the aged viscosity increase characteristics of QYLF in a typical plastisol. Figure 2 shows the gelation curve for a plastisol based on QYLF.

Baking Temperature vs. Film Properties

BAKELITE Vinyl Dispersion Resin QYLF develops film strength and elongation properties as well as gloss at lower temperatures than conventional high molecular weight resins not designed for low-fusing properties.

Figure 3 shows the effect of baking temperature on film tensile strength of BAKELITE vinyl dispersion resin QYLF vs. the more conventional BAKELITE Vinyl Dispersion Resin QYNV.

Figure 4 shows the per cent elongation of plastisol films based on QYLF vs. QYNV over the fusing temperature range of 275-375°F.

QYLF has exceptionally good gloss and clarity. A comparison of the 60° Gardner gloss rating obtained from plastisols based on QYLF and QYNV over the fusing range 275-375°F. is shown in Figure 5.

Heat Stability

QYLF has good heat stability. The Table shows the heat stability characteristics of a stabilized plastisol fused at 350°F. and at 400°F. for longer than normally accepted times for this operation.

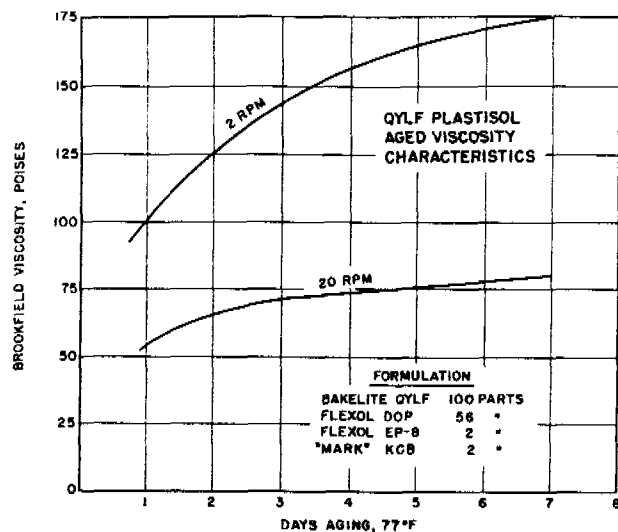


Figure 1

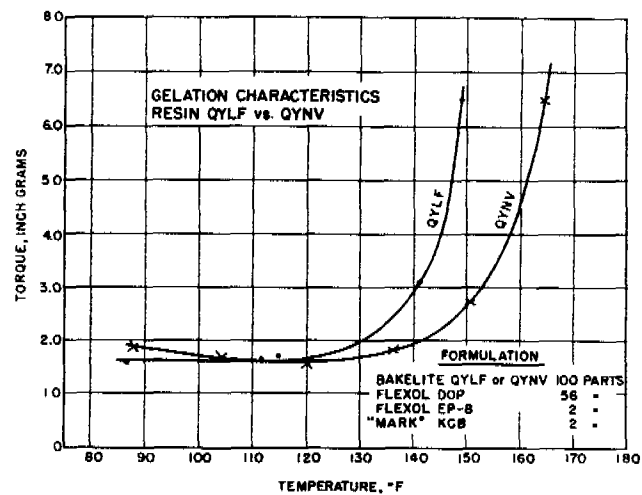


Figure 2

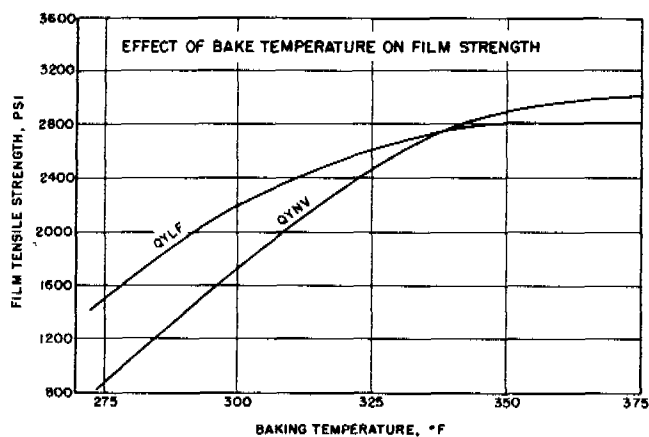


Figure 3

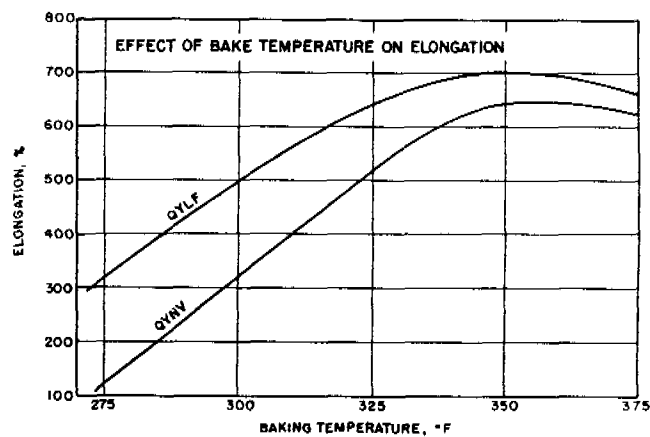


Figure 4

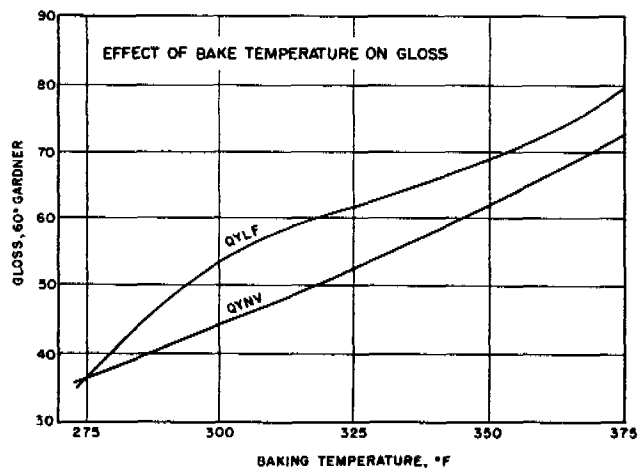


Figure 5

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TABLE I
HEAT STABILITY OF QYLF BASED PLASTISOL

<u>350°F.</u>		<u>400°F.</u>	
<u>Minutes</u>		<u>Minutes</u>	
5	10	5	10
10	10	10	10
20	10	20	3
30	10	30	0
45	9		
60	4		

10 = No change
0 = Black

Formulation:

QYLF	100 Parts
FLEXOL plasticizer DOP	56 "
FLEXOL epoxy ester EP-8	2 "
"Mark" KCB	2 "

Formulations

Both plastisols and organosols can be formulated with QYLF to obtain satisfactory finished coatings, rotationally molded, slush molded, and dipped items. A more comprehensive description and discussion of plastisol and organosol preparation, formulation, and handling characteristics are presented in the Union Carbide Plastics Division Process Data Booklet, "BAKELITE Vinyl Resins for Plastisols and Organosols."

QYLF is typical of the family of high molecular weight dispersion resins, and may require the addition of a deaeration additive such as "PEG-400" at a ratio of 1 part additive per 100 parts of dispersion resin.

Technical Assistance

Union Carbide's Plastics Division has highly trained coatings engineers in the field ready to serve you. These technical representatives will be glad to discuss your individual problems and to assist you in the formulation of plastisols and organosols based on BAKELITE Vinyl Dispersion Resin QYLF and other BAKELITE vinyl, phenolic, phenoxy, epoxy, acrylic, and polyketone coating resins.