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"Dutch Boy"
PROVINITE

Clear Heat and Light Stabilizer
for Vinyl Film, Sheet, and
Dispersion Resin Systems



DUTCH BOY CHEMICALS

A Product Development of
NATIONAL LEAD COMPANY

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'Dutch Bog' PROVINITE®

"DUTCH BOG" PROVINITE is a barium-cadmium organic complex especially suited to the stabilization of clear vinyl film and sheeting, and dispersion resin systems. It is provided in two parts. PROVINITE A is a soft white powder which is easily dispersible in a plastic mix. PROVINITE B is a clear liquid, miscible with most of the vinyl plasticizers in common usage. PROVINITE will give best results in vinyl plastics when the two components are used in the recommended proportions.

Table of Properties

PROVINITE A	
Color and Form	Soft white powder
Specific Gravity (20°C.)	1.31
Refraction Index (25°C.)	1.36
PROVINITE B	
Color and Form	Clear straw-colored liquid
Specific Gravity (25°C.)	0.880
Refraction Index (25°C./25°C.)	1.482

General Characteristics

(1) **Heat Stability**—PROVINITE has remarkably good heat stabilizing action with all commonly used vinyl resins. It is especially recommended for high temperature calendaring of vinyl film and sheeting where it maintains very good clarity without yellowing. Because of its strong reserve heat stability, PROVINITE helps to preserve original colors in both calendaring and extrusion operations.

(2) **Light Stability**—The light stability of PROVINITE is of the highest order available in the barium-cadmium type of stabilizer. PROVINITE is outstanding for the many and varied vinyl products which are subjected to outdoor exposure during service. Included among these applications are calendared vinyl coated fabrics and dispersion resin coatings, extruded garden hose, sheeting and film for automotive and garden furniture upholstery, and other exterior protective vinyl coverings. Recommended for both clear and highly translucent vinyls, PROVINITE provides strong resistance to the effects of sunlight during the life of the product.

(3) **Resistance to Plate-out**—exceptional barium-cadmium resistance to spray or plate-out, either alone or in systems it does not affect stability.

(4) **Use with Plasticizers**—containing a wide variety of plasticizers and solvents, PROVINITE polymers and oil type plasticizer stabilizer for clear compounds and low temperature flexibility, low

Rec

The recommended ratio of log to the particular end usage product.

In general, maximum recovery VINITE A and 1% of PROVIN plasticizers, used in small amounts barium-cadmium stabilizers.

Lower levels of PROVINITE are stringent, and more complex in such cases, the concentration 1.5%, together with 1% PROVIN plasticizer by using from 0.1% to 0.5% stabilizer.

Shown below are specific products.

- Calendared Film and Sheet
 - Clear Film
 - High Temperature
- Non-Electrical Extrusions
 - Welding
 - Garden Hose
- Dispersion Resin Systems (Organic)

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"Dutch Boy"® PROVINITE®

PROVINITE is a barium-cadmium organic complex coprecipitation of clear vinyl film and sheeting, and dispersion in two parts. PROVINITE A is a soft white powder in a plastic mix. PROVINITE B is a clear liquid, miscible plasticizers in common usage. PROVINITE will give results when the two components are used in the recommended

Table of Properties

as _____ Soft white powder
by (25°C.) _____ 1.30
by (125°C.) _____ 1.30

as _____ Clear straw-colored liquid
by (25°C.) _____ 0.880
by (125°C./15°C.) _____ 1.042

General Characteristics

PROVINITE has remarkably good heat stabilizing action on vinyl resins. It is especially recommended for high temperature film and sheeting where it maintains very good results of its strong reserve heat stability. PROVINITE does in both calendaring and extrusion operations.

The light stability of PROVINITE is of the highest order among type of stabilizers. PROVINITE is outstanding in products which are subjected to outdoor exposure among these applications are calendared vinyl coated coatings, extruded garden hose, sheeting and film furniture upholstery, and other exterior protective coating for both clear and highly translucent vinyls, long resistance to the effects of sunlight during the life

(3) Resistance to Plate-out and Viscosity Build-Up—Compared with conventional barium-cadmium stabilizers, PROVINITE has surprisingly good resistance to spray or plate-out, either on calendar rolls or on mold surfaces. In dispersion resin systems it does not cause objectionable bodying or impair viscosity stability.

(4) Use with Plasticizers—PROVINITE is used in vinyl compounds containing a wide variety of plasticizers. In addition to the standard phthalates, adipates and sebacates, PROVINITE is especially effective with the phosphates, polymers and oil type plasticizers. Thus, PROVINITE is a particularly valuable stabilizer for these compounds requiring special properties such as flame resistance, low temperature flexibility, low volatility or non-migration.

Recommendations

The recommended ratio of PROVINITE A to PROVINITE B varies according to the particular end usage and stability requirements of the vinyl plastic product.

In general, maximum reserve heat stability is obtained with 2% of PROVINITE A and 1% of PROVINITE B, based on the resin content. Epoxy ester plasticizers, used in small amounts, usually increase the heat stabilizing action of barium-cadmium stabilizers.

Lower levels of PROVINITE are desirable where heat requirements are less stringent, and more emphasis is placed on clarity and resistance to plate-out. In such cases, the concentration of PROVINITE A should be between 0.75% and 1.5%, together with 1% PROVINITE B. Maximum resistance to sulfur staining is gained by using from 0.1% to 0.5% (resin basis) of a supplementary organic zinc stabilizer.

Shown below are specific recommendations for several classes of vinyl products.

	PROVINITE Concentration (Resin Basis)	
	A	B
1. Calendared Film and Sheeting		
a. Clear Film	2.5-1.5%	1%
b. High Temperature Sheeting	2	1
2. Non-Electrical Extrusions		
a. Weaving	1	1
b. Garden Hose	1.5%	1
3. Dispersion Resin Systems (Plastics and Compounds)	1	1

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