747-0794-001183

#070585

Sun Chemical Corporation
Research & Operations Center
Pigments Division
4625 Este Avenue
Cincinnati,
Ohio 45232-1984

IR-350

May 17, 1985

Dr. Robert Brink
Executive Secretary
Toxic Substances Control Act
Interagency Testing Committee
401 M Street, S.W.
Washington, D.C. 20460

Dear Dr. Brink:

In response to a recent discussion which I had with Dr. Arthur Stern, I am including some information which I would ask you to review on Colour Index Pigment Green 7.

As I understand it, the reason for Interagency consideration of Pigment Green 7 for priority testing is related to a lack of understanding on solubility characteristics of the product.

C.I. Pigment Green 7, more conventionally known as Phthalocyanine Green, is one of the most insoluble organic substances synthesized by man! While it is possible to solubilize the product, this requires such extraordinary techniques as solution in molten aluminum chloride or chlorosulfonic acid. When such solution is admixed with water, complete precipitation of Phthalocyanine Green results.

Accordingly, it is not possible to carry out upgraded aquatic toxicity testing of Phthalocyanine Green in water solution, as envisaged by ITC.

For your information, I am attaching two pages from a widely accepted textbook dealing with phthalocyanine compounds. Please note reference to the outstanding insolubility of these products.

I am intending to furnish ITC with some hard analytical data substantiating the above position; this will be forwarded during the month of August.

I am also copying this letter to other producers of Phthalocyanine Green pigment, and would request that they consider corroborating my statement to you if they so wish.

Sincerely,

SUN CHEMICAL CORPORATION
Pigments Division

Hugh M. Smith

Dr. Hugh M. Smith
Director of Research & Development

HMS/smk

enc.

cc: M. daRocha, DCMA Analytical Committee Chairperson
J.G. Finneran, Cleary, Gottlieb, Steen & Hamilton
J.L. Robinson, DCMA
P. Webb, DCMA Phthalocyanine Pigments Subcommittee

The Phthalocyanines

Volume I
Properties

Authors:

Frank H. Moser
Consulting Chemist
Holland, Michigan

Arthur L. Thomas
Editor
Hull & Co.
Greenwich, Connecticut

CRC Press, Inc.
Boca Raton, Florida 33431

INTRODUCTION

We have brought together the wealth of new information in the phthalocyanine field which has been generated since the early 1960s to about 1975. The thrust has been to provide as much topical review and discussion as possible for the 3000 to 4000 references from the journal and patent literature in this time interval. This intense activity in a very exciting field of chemistry, is at a steady, high tempo, and this study should be of interest to both the practitioner and theoretician of phthalocyanine chemistry. At a glance he can determine what work has been accomplished and he can then determine his program quickly and effectively.

Phthalocyanine compounds have, since their final discovery and elucidation of structure in 1934, achieved a notable success as a model structure for theoretical and experimental organic and physical chemical study and as high achievers as pigments and dyes in the green and blue portions of the spectrum. Because of the ease of their manufacture and the ready availability of the raw materials for their manufacture, they have displayed success as coloring matters, displacing, to a large extent, their predecessors, ultramarine blue and iron blue. Today about 12 million lb of phthalocyanine blue and about 3 million lb of phthalocyanine green are produced annually in the U.S. alone at a unit value of $7- to $10/lb.

Phthalocyanine blues and greens are used as pigments because of their outstanding stability to light, heat, acids, and alkalies, and, of course, their insolubility in water and organic solvents. They are used extensively in printing inks, paints, coatings, and plastics. The G shade of blue has the proper shade and transparency to use in color printing. They have given us beautiful automobile colors, and can be used in the matching colors in plastics for car interiors.

The phthalocyanines are also used as catalysts in sulfur oxidations in the petroleum industry and find use in lasers, lubricants, medicines, photography, as photo- and semiconductors, in xerography, and as indicators.

The phthalocyanines are eulogized as a perfect molecule for chemical study. There has been a steady outpouring of research publications based on the phthalocyanines, including the topics of catalysts, crystals, magnetic properties, semiconductors, spectra, including luminescence, lasers, and chemical reactions. There has also been an interest to prepare phthalocyanine polymers with useful properties for practical applications.

The authors' wish is that this monograph, like its predocessor volume, published in 1963, will respond to the demands of its readers for a ready access to the world literature in the field of phthalocyanine chemistry and technology.

Frank H. Moser
Holland, Michigan

Arthur L. Thomas
Greenwich, Connecticut

AMTEK CORP.

CERTIFICATE OF AUTHENTICITY

THIS IS TO CERTIFY that the microimages appearing on this microfiche are accurate and complete reproductions of the records of U.S. Environmental Protection Agency documents as delivered in the regular course of business for microfilming.

Data produced 7 (Month) 10 (Day) 97 (Year) Marcia Rubalino Camera Operator

Place Syracuse (City) New York (State)