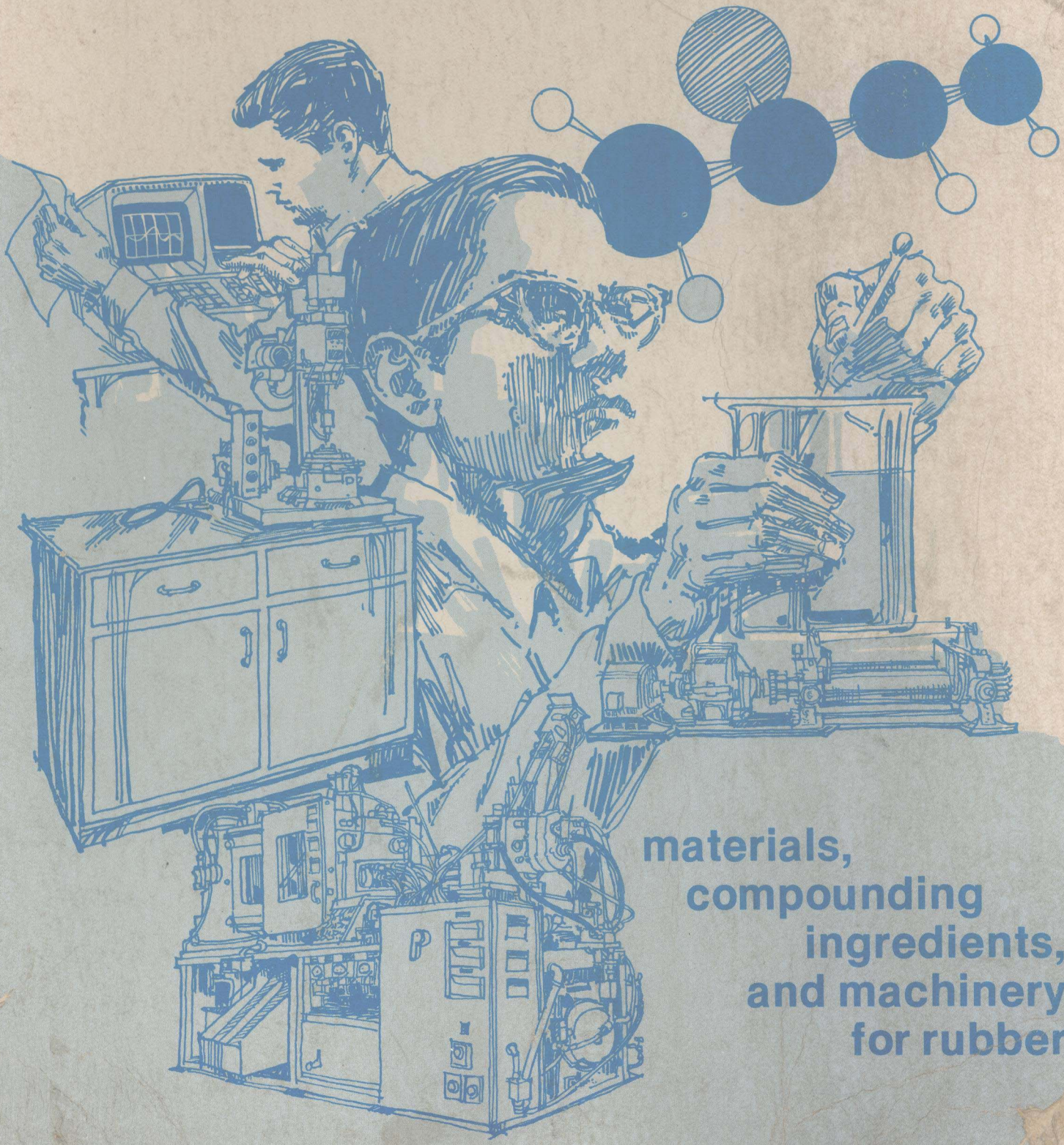
A BILL PUBLICATION

Rubber World

1978 BLUE BOOK



materials, compounding ingredients, and machinery for rubber

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MATERIALS, COMPOUNDING INGREDIENTS, AND MACHINERY FOR RUBBER

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Ethyl Acrylate

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Diethanolamine
Triethanolamine
N-Phenyl-alpha-Naphthylamine
FLEXOL Plasticizers 4GO, TOF and EPO
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UCARSIL DSC-18 Silane Coupling Agent

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UCAR Bisphenol A
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Methyl Ethyl Ketone
Propionic Acid

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UCON Mandrel Lubricant

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UNION CARBIDE

Rubber Chemical Intermediates

FOREWORD

Data presented in the 1978 edition of Rubber World's **Blue Book** was stored and edited using a large-scale, third-generation computer system. The computer produced questionnaires which were then mailed to each manufacturer who checked them for accuracy. Corrections marked on the returned questionnaires were then entered in the computer, which was subsequently programmed to typeset the data on an electronic typesetter. Indices were also automatically generated by the computer for typesetting.

This modern publishing technology makes available efficiencies and economies not found in conventional methods of typesetting. For example, the need to completely re-input the data for typesetting and subsequently proofread that data, is eliminated. Moreover, the computer is able to produce pages ready for the printer's camera with all elements of the page properly positioned, thus eliminating the need for time-consuming manual positioning.

The intent of this directory is to furnish the compounder, chemist, researcher, purchasing agent or market researcher with a thumbnail sketch of the physical and chemical properties of these materials, how and why they are used in rubber product-making processes, and the specific rubbers and/or products that these materials are recommended for.

Chief among the factors necessitating an annual compilation is the enormous amount of change in materials and rubbers in the industry. There are currently more than 10,000 trade-name items available to rubber firms for fabricating products. More impressive, however, is the fact that the current edition of the **Blue Book** — as opposed to the 1977 edition — represents a 25% rate of change in the listings to provide the most complete and up-to-the-minute information possible.

As an extra **Blue Book** bonus, subscribers will receive Rubber World's compounding ingredients price list with the most up-to-date prices of hundreds of compounding materials. The price list, compiled twice a year in March and September, is the only comprehensive price listing of its kind in the industry and will be a special mailing to all purchasers of the **Blue Book**.

The type for this book was created on the Fototronic CRT typesetter, controlled by a UNIVAC 1108 computer at Chi Corporation in Cleveland, Ohio.

Abbreviations

Atm — Atmospheres
B p — Boiling point
° — Degrees centigrade
cc — Cubic centimeter
COC —Cleveland Open Cup
cps — Centipoises (viscosity)
Dens — Density
°F — Degrees fahrenheit
F p — Freezing point
gal — Gallon
max — Maximum
min — Minimum
ml — Milliliters
Mol wt — Molecular weight
M p — Melting point
pbw — Parts by weight
phr — Parts per hundred parts rubber or resin
pph — Parts per hundred
psi — Pounds per square inch
RHC — Rubber hydrocarbon
sec — Seconds
Sp gr — Specific gravity
SUS or SSU — Second Saybolt Universal (viscosity)

Rubber Nomenclature

The rubber nomenclature (see below) used throughout this book is that prescribed by the American Society for Testing and Materials (ASTM) for both natural and synthetic rubbers.

ABR — Acrylate-butadiene rubbers
BR — Butadiene rubbers
CM — Chlorinated polyethylene rubbers
CR — Chloroprene rubbers
EPDM — Ethylene-propylene-diene rubbers
EPM — Ethylene-propylene rubbers
IIR — Isobutylene-isoprene rubbers
IR — Isoprene rubbers (synthetic)
NBR — Nitrile-butadiene rubbers
NCR — Nitrile-chloroprene rubbers
NIR — Isobutylene-isoprene rubbers
NR — Isoprene rubbers (natural)
PBR — Pyridine-butadiene rubbers
SBR — Styrene-butadiene rubbers
SCR —Styrene-chloroprene rubbers
SIR — Styrene-isoprene rubbers

Note: When designating latex or latexes the terminology shall be, for example, "SBR latex" or "SBR latexes."

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BLE®, Polygard®, Celogen® OT, Celogen AZ, Octamine®, MBTS, Naugawhite®, Flexzone® antiozonants and Bonding Agents R-6/M-3 to name a few, have helped in the manufacture of better and higher quality products. Heat, oxygen, ozone, flexing, discoloration, and adhesion problems have been greatly minimized. The service life and attractiveness of rubber products are considerably increased by the use of Uniroyal chemicals.

More information on the properties of each chemical is contained in technical reports. Copies of these reports may be obtained for the compounder's use. Write or call Uniroyal Chemical, Naugatuck, Connecticut 06770; (203) 723-3000.

CLASSIFICATION	ACCELERATORS		ANTIOXIDANTS		ANTI-OZONANTS	WAXES	BLOWING AGENTS	MISC.
	PRIMARY	SECONDARY	STAINING	NONSTAINING				
Tires (sidewall)	MBT MBTS Delac® S Delac NS Delac MOR	Monex® Tuex® BIK® Activator 736	BLE® Flexamine® Aminox® Naugard® Q	Naugawhite®	Flexzone® 3C, 4L, 5L, 6H, 7L, 7F, 8L, 9L, 10L, 11L, 12L, 18F Naugard 474	Sunproof® Improved Sunproof Extra		Laurex® Retarder J
Tires (tread)	MBT MBTS Delac S Delac NS Delac MOR	Monex Tuex BIK Activator 736	BLE Flexamine Aminox JZF® Naugard Q		Flexzone 3C, 4L, 5L, 6H, 7L, 7F, 8L, 9L, 10L, 11L, 12L, 18F Naugard 474 Naugard 477	Sunproof Improved Sunproof Extra		Laurex Retarder J
Tires (retread)	MBT MBTS Delac S Delac NS Delac MOR Monex Accel. 131	Monex Tuex MBTS BIK Activator 736	BLE Flexamine Aminox Naugard 477 Naugard Q		Flexzone 3C, 4L, 5L, 6H, 7L, 7F, 8L, 9L, 10L, 11L, 12L, 18F Naugard 474 Naugard 477	Sunproof Improved Sunproof Extra		Laurex Retarder J
Tires (carcass)	MBTS Delac S Delac NS Delac MOR	Monex Tuex BIK Activator 736	Flexzone® 7L Flexzone 12L BLE Aminox, BXA Octamine® Naugard Q	Naugawhite				Laurex Retarder J Bonding Agent M3P, R4, R6 Vulklor®
Air cured footwear	MBT MBTS	Monex Tuex Methazate®	Aminox Octamine Naugard Q	Naugawhite Polygard®		Sunproof Regular Sunproof Improved		Tonox® Retarder ESEN® Laurex BIK Processing Agent 748
Molded soling	MBT MBTS Delac S	Monex Tuex Methazate	Octamine Polylite™	Naugawhite			Celogen® OT Celogen AZ Celogen RA	Retarder ESEN BIK Processing Agent 748

ASP-4398

UNIROYAL

CLASSIFICATION	ACCELERATORS		ANTIOXIDANTS		ANTI-OZONANTS	WAXES	BLOWING AGENTS	MISC.
	PRIMARY	SECONDARY	STAINING	NONSTAINING				
Latex and foam	MBT OXAF® 50D Tuex	Methazate Ethazate® 50D Butazate® 50D Arazate®	Aminox Aranox® Flexamine Polylite Naugard Q	Naugard SP Naugawhite Antioxidant 439™ Naugard K Antioxidant 431	Flexzone IIL	Sunproof Regular	Celogen OT Celogen AZ	RF75 Trimene® Base
Insulated wire	OXAF MBTS MBT Royalac® 136 Delac NS	Monex Tuex Methazate Ethazate	Aminox Octamine Polylite BLE Flexamine Naugard Q	Naugawhite Aranox		Sunproof Regular Sunproof Improved	Celogen OT	Vulklor
Insulation jacket	OXAF MBT MBTS Royalac 133 Delac NS	Monex Tuex Methazate Ethazate	Aminox Octamine Polylite Flexamine Naugard 477 Naugard Q	Naugawhite Aranox	Flexzone 3C, 6H, 5L, 7F, 18F Naugard NBC	Sunproof Regular Sunproof Improved		Vulklor
Molded and mechanical goods	Delac S Delac NS MBT MBTS Beutene® Tuex Accel. 131 Royalac 136 Royalac 133	Monex BIK Tuex Royalac 139 Royalac 140 Activator 736	Aminox BLE BXA® Octamine Flexamine G Polylite Naugard 477 Naugard Q Naugard 495	Naugawhite Aranox Naugard SP Naugard K Naugard 445	Flexzone 3C, 6H, 5L, 7F Naugard NBC	Sunproof Regular Sunproof Improved	Celogen OT Celogen AZ Celogen RA Celogen TSH	Processing Agent 748 Tonox Laurex Retarder ESEN Retarder J BIK Activator 736
Sundries	Delac S MBT MBTS Hepteen® Base Tuex Royalac 136	Monex Tuex Methazate	Aminox Octamine Polylite Naugard Q	Naugawhite Aranox Naugard SP Naugard K		Sunproof Regular Sunproof Improved Sunproof Jr.	Celogen OT Celogen AZ Celogen RA	CPB® DBA
Polymer manufacture			BLE Polylite Aminox Naugard Q	Polygard Naugawhite Antioxidant 451™ Naugard 445 Antioxidant 449™ Naugard BHT Naugard SP Antioxidant 456™ Antioxidant 439	Flexzone 5L, 7L, 11L			Thiostop® N

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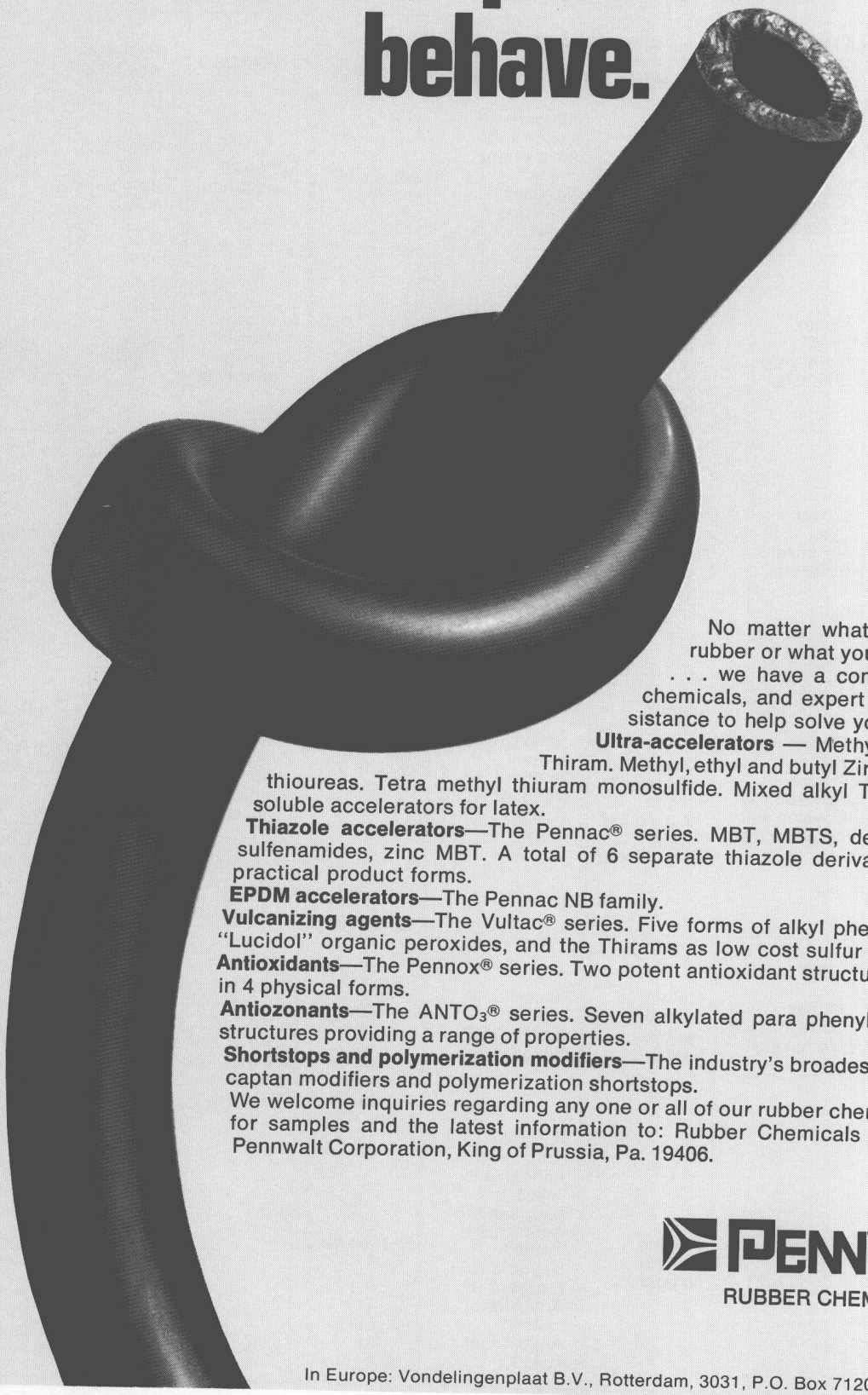

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Introduction

This supply directory follows the general style of classification of rubber compounding materials commonly used throughout the world (see Contents, pp. 3-4). It has always been difficult—and is becoming more so—to assign one classification to materials fulfilling more than one function in rubber compounding. For this reason a few materials had to be placed in a category on a quite arbitrary basis. Basically, however, our aim has been to satisfy the needs of the user without making the book too difficult to follow. Therefore, the materials have been listed in the section (or sections) that fit the major usage suggested by the supplier.

The information for each of the individual listings has been consolidated into two main groupings—properties and compounding; for rubbers, into properties, compounding & processing and vulcanizate applications & properties. To assist the reader in quickly identifying the specific applications for a material, the information under the heading "Function and Compounding" is begun with the rubbers and latexes the supplier recommends his material for. Similar procedures have been adapted for the "Properties" column where each item begins with the specific gravity; for carbon blacks, where particle size and surface area have been put into tabular form; and for elastomers, where viscosity has been columnized.

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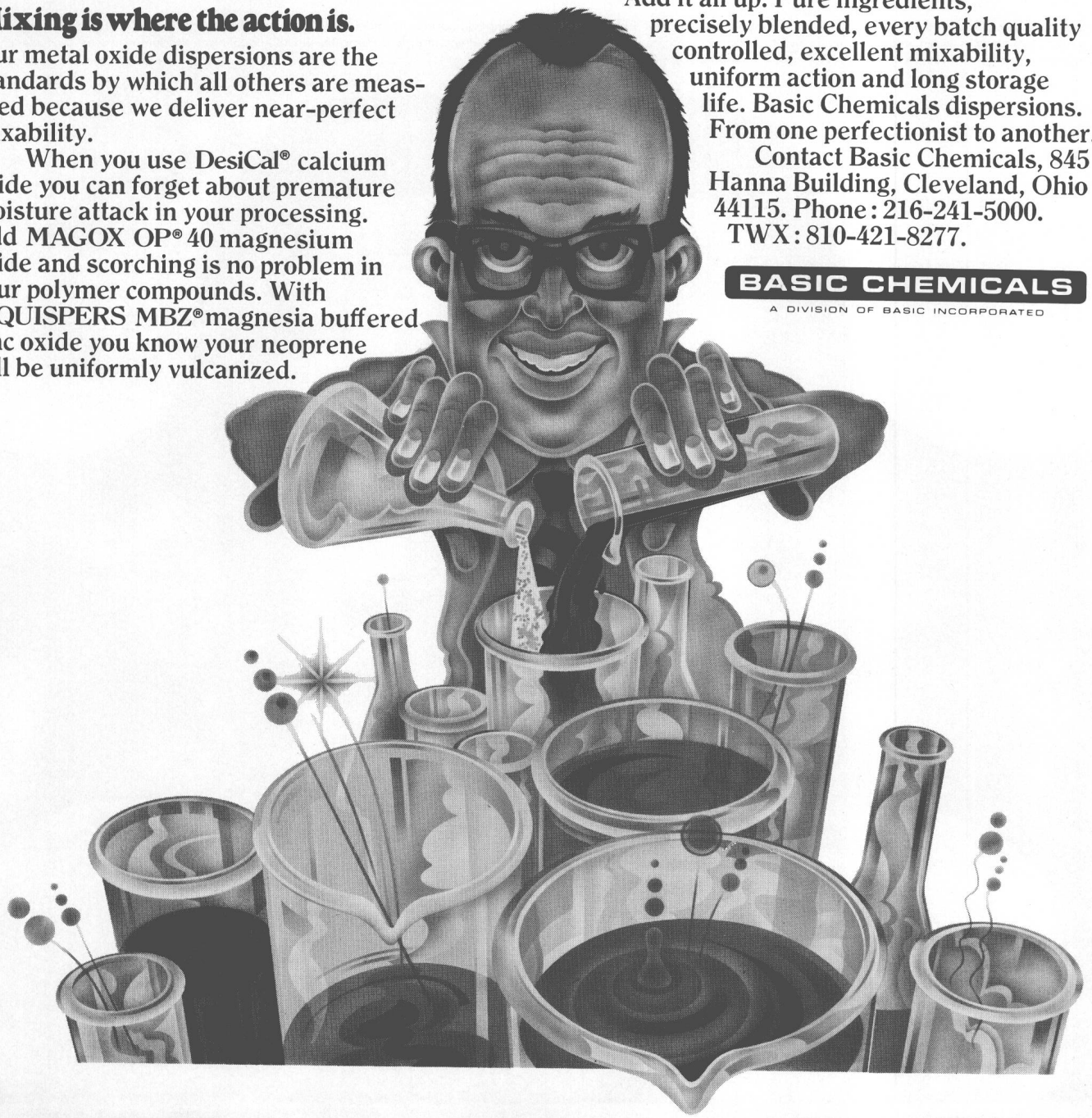

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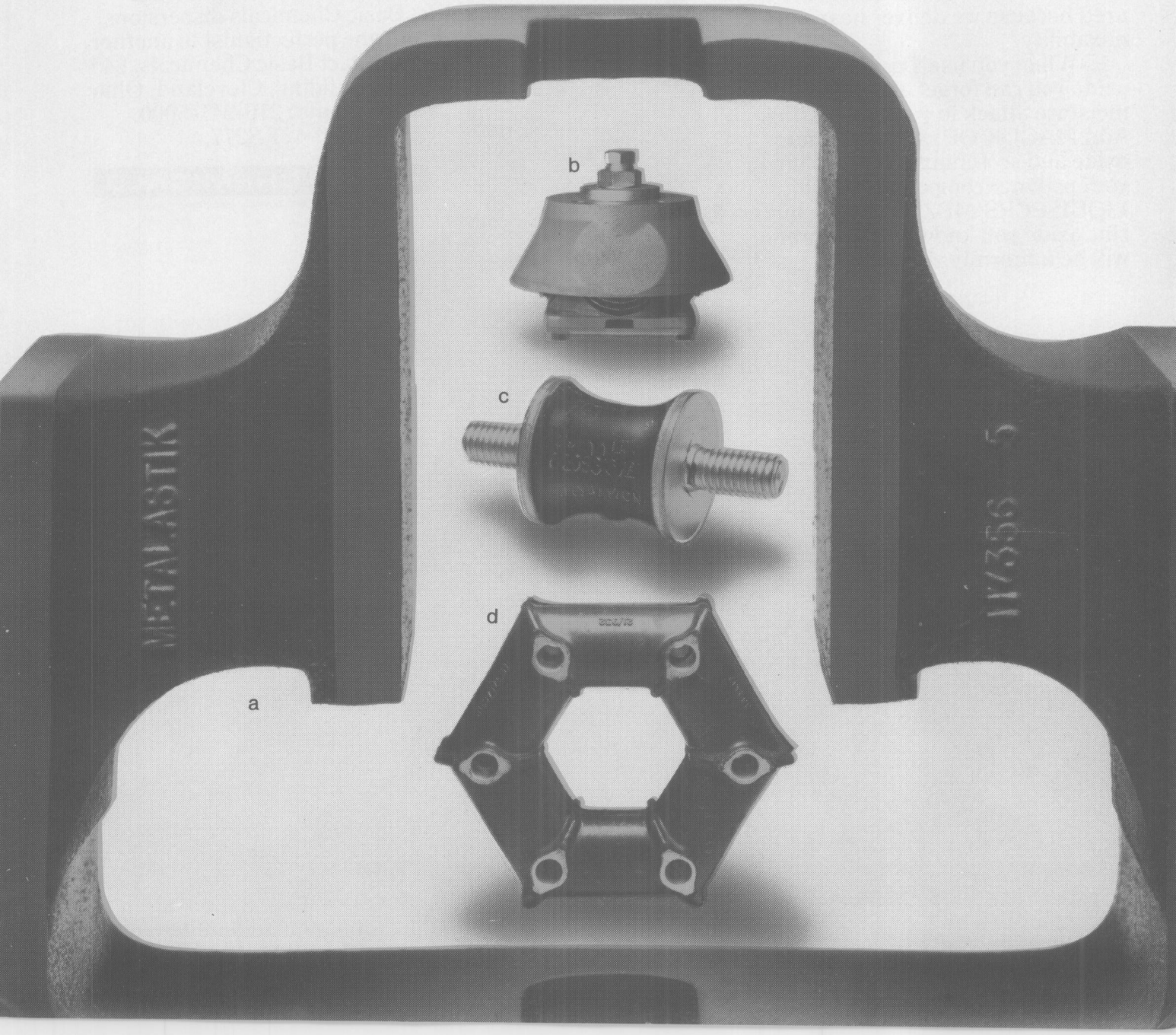

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