

# CrO<sub>2</sub> -tomorrow's tape?

A REPORT ON DUPONT 'CROLYN' BY EDWARD TATNALL CANBY

REPRINTED FROM FEBRUARY 1968 'AUDIO'

A MONTH after I learned about a dramatic new kind of magnetic tape based on a chromium dioxide compound, the august DuPont company gave an informal demonstration of the new product, which they call *Crolyn*, before a potent and intensely interested group of audio engineers at a meeting of the New York section of the *Audio Engineering Society* (AES). This slightly inquisitive non-engineer (who had been foresighted enough to become a charter member of the Audio Engineering Society many long years ago) hastened to the scene to listen in, and hopefully to sniff the winds of change.

They blew all right. They fairly whistled around the slightly antique New York hotel ballroom that Bob Fine has converted into a very un-antique recording studio. This was one of those Major Occasions. Or so I felt. A great deal more than just another new and better tape was involved here.

It was a peculiar meeting in a way. Great Commercial Empires have a distinctive style of presentation for their new products, as those of us who have attended press reviews, seminars, technical convention presentations and the like have long since discovered. It might be called the cryptic underplay, or the super-soft sell. The larger the Commercial Empire, the slicker is the presentation—and the more utterly offhand are the 'claims'. Indeed, the air of genial informality can get so intense you can slice it with a knife! You have to be on the spot to appreciate the phenomenon. Sometimes you can learn more from mere tones of voice, from fleeting smiles or frowns, from very expressive deadpans, than you can from the actual words.

After all, it is a huge responsibility for a man to stand up before a professional audience and represent, in his person, perhaps a cool billion dollars of sheer corporate entity. And

to talk about a new potential that also may involve enormous investment sums. If you were acting as Mr. DuPont, personified, wouldn't you play it cool?

And so I give my full admiration to the two DuPont gents (I'll leave them their anonymity) who so engagingly and offhandedly described DuPont's new tape for us. They were surprisingly straightforward, I thought, and remarkably unevasive. Only once or twice did I get that certain feeling that maybe, behind a deadpan answer to a probing question, there just might be a bit more involved than was being said in so many words. The net result added up to a very impressive presentation—underplay or no. That is, that this chrome tape is going to be as big a thing in our audio field, I would guess, as it already promises in the large first-priority areas of computer and instrumentation where it is now in limited commercial production.

## NO SINGLE TAPE

A few basics. First—we must understand that to develop a 'family' of tapes from a single new magnetic compound of this sort involves a long period of research and experiment. There is no single tape for all purposes, and desirable characteristics vary greatly. They even vary within our relatively simple audio field. It seems wholly reasonable for DuPont to have turned first to the pressing needs of the non-audio tape areas, formulating its new tape first in those special terms. Audio inevitably comes further down on the priority list—we are a bit smaller than we think, you know. But, unless there are fundamental problems, basic faults or disadvantages, the audio demands will inevitably be investigated and audio tapes will be formulated to fit our special requirements. Business is business, and nowhere more so than *chez* DuPont. They'll admit it cheerfully.

Chromium dioxide, the basic new material, is a synthetic that does not exist in nature. It is derived from chromium trioxide at high temperatures (above 375°C) and a pressure of 3000 atmospheres of oxygen. You won't be synthesizing it in your kitchen sink. (Presumably the stuff could occur at the pressures and temperatures found near the earth's centre. But we aren't likely to be mining around down there in the near future.) DuPont was the first to synthesize it and when the rather extraordinary magnetic properties of this material became apparent, they inevitably went into the preliminary developments that would lead to a new tape.

The dioxide comes in needle-like crystals (roughly 10:1 in configuration, length to width), as DuPont puts it, "acicular, single domain particles which can be varied in length from four to 400 microinches" and with a coercivity that "can be varied from 25 to over 700 oersteds". The saturation flux density is 6100 gauss and the Curie point is 126°C. This oxide has "a higher magnetic moment per unit of volume than gamma iron oxide typically used in conventional magnetic tape"; and this overall characteristic "leads to many practical advantages in the various industries which rely on magnetic tape for information recording". That may be the understatement of the year. In the Canby lingo, the stuff just has more umph per inch—a lot more. And—so far—very few serious problems, actual or anticipated.

It is especially significant, if I read the photomicrographs I saw correctly, that chromium dioxide forms a marvellously even and smooth coating for tape, the particles much more uniformly dispersed and much smaller than even the best iron oxide in present high-grade low-noise tape. This, you see, slants the spotlight straight in the direction of our most vital area of present development in audio:

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