This is a scanned copy of an original document

The scanned copy was OCR'ed with ABBYYFineReader v 9.0 and then saved as a pdf document using the recognized text and images.

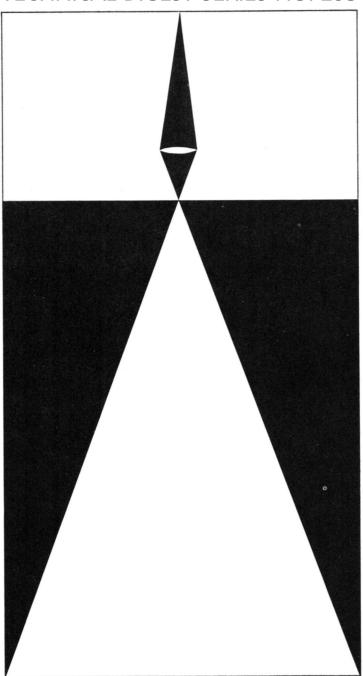
All unrecognized text was corrected and all uncertain characters reviewed, none the less, there can be no assurance that this is an accurate reproduction of the original.

T. Gardner December 2008

electron photomicrographs

DISC COATING CROSS SECTIONS

M E M O R E X TECHNICAL DIGEST SERIES NO. 108



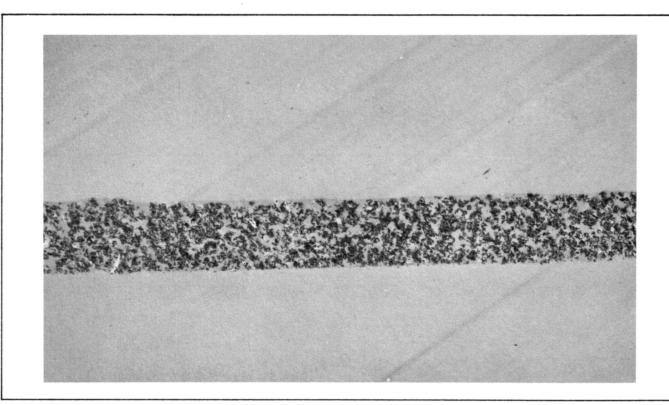
MEMOREX CORPORATION/1180 SHULMAN AVENUE SANTA CLARA, CALIFORNIA 95050/(408) 248-3344

DISPERSION COMPARISONS

It is clear from a technical standpoint that the characterization of an outstanding recording media would include the statement "A uniform and homogeneous dispersion of magnetic material in a binder system".

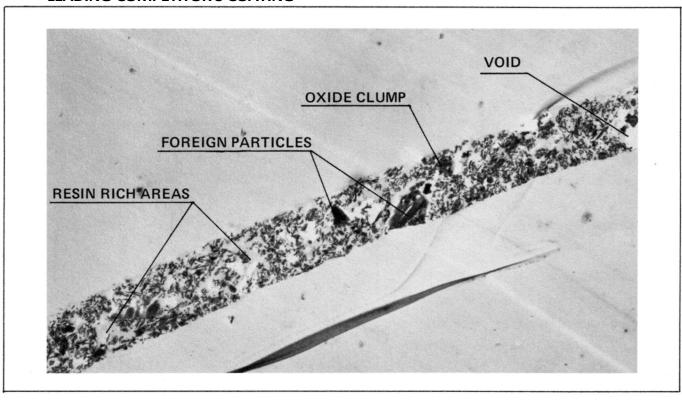
Electron photomicrographs show the dispersion coatings of two leading disc pack manufacturers. The Memorex dispersion shows a uniform distribution of material within a binder system free from undissolved resin and foreign particles.

Recording without errors requires that each magnetized bit ("spot") of information contain enough of the right kind of magnetic materials, properly dispersed, to assure that the specified signal level will be attained. Resin "rich" areas, agglomerates, undissolved resin, voids, and foreign particles all tend to reduce the signal level attained from the recorded bits in that area or cause reliability degrading noise.



MEMOREX DISC PACK COATING

LEADING COMPETITOR'S COATING



INTEROFFICE CORRESPONDENCE

TO: Dick Penny DATE September 13, 1968

FROM: D. C. Gaubatz COPY TO: L. L. Burns

E. D. Daniel

SUBJECT: MICROGRAPHIC OBSERVATION OF D. K. Stellman

DISC COATING CROSS-SECTIONS

The electron microscope represents the only practical method for studying a cross-section of a magnetic recording median. As a slice of bread reveals the interior of the loaf, so does a single slice of magnetic recording medium exhibit the interior structure of the product. This cross-sectioned slice accurately depicts the thickness of the coating, coating defects, uniformity of dispersion, agglomeration, particle:size and shape, voids, binder-rich areas, inclusions, particle orientation, nodules, loose oxide surface particles, and surface roughness. It is the control of these and additional parameters that distinguish a precision product above a l others.

In the production of a disc coating cross-section, a sample of the material is suspended in a potting resin. When the resin has cured, the potted specimen is mounted on the arm of an ultramicrotome. A sharp diamond knife is used to slice a 2 to 6 microinch thick section of he disc coating. This slice is floated onto a liquid surface. A small copper grid is used to retrieve and hold the section for direct observation in the electron microscope.

The primary electron microscope used by Memorex for the observation of the disc coating cross-sections is a Siemens Elmiskop 1A-125. This instrument was the fourth 125 kilovolt Siemens microscope to be installed in the United States and is still the only one on the West Coast. The cost of the instrument and its accessories is just under \$100, 000. The instrument provides direct magnifications up to 160,000 times. Further, image enlargement in the darkroom produces 1,600,000 times magnification. This is equivalent to stretching the thickness of a dime out to a length equal to 2. 7 reels of computer tape laid end to end.

Thickness of a dime = 0.05 inches multiplied by Maximum magnification 1,600,000X

Total = 80,000 inches

Divide by 12 = 6,660.7 ft.

Divide by 5280 = 1.263 miles

Divide number of feet by 2500 ft. (unit of computer tape) = 2.7 reels.