PRELIMINARY PRODUCT DATA SHEET

CHOMERICS

Parker Seals

LEADER IN EMI SHIELDING INNOVATION, DESIGN, AND TESTING TECHNOLOGY

CHO-FLEX 440X Family of Force Sensitive Resistive Inks

DESCRIPTION

Chomerics has developed a family of silk-screenable, resistive inks for use in specialty circuits and sensors. These inks are characterized by a reduction in electrical resistance with increasing forces. When designed into a circuit or sensor along with Chomerics electrically conductive inks they produce a system which can measure changes in force. Application possibilities are numerous, ranging from medical sensors to specialty strain gauges to electronic toys.

CHO-FLEX 440X inks are provided as a thick, silk-screenable paste, but can be thinned to adjust the viscosity as necessary. The recommended screen sizes of 270 to 325 mesh will result in film thicknesses of 0.6 mils (0.0006 in.) to 1.0 mils (0.001 in.), depending on the ink viscosity. The screened ink will adhere to polyester films and many other substrates.

When used with conductive inks, such as Chomerics' CHO-FLEX 4430, the CHO-FLEX 440X family of inks will form a sensor with unique properties. The conductive ink forms the circuit pattern, and the force sensing circuit is completed by layering the force sensitive ink between the circuit traces. The result is a relatively resistive circuit (>10 kohms) without any load, which becomes more conductive as the force increases. The shape of the force-resistance curve is shown in Fig. 1. The test method is shown in Fig. 2.

Figure 1

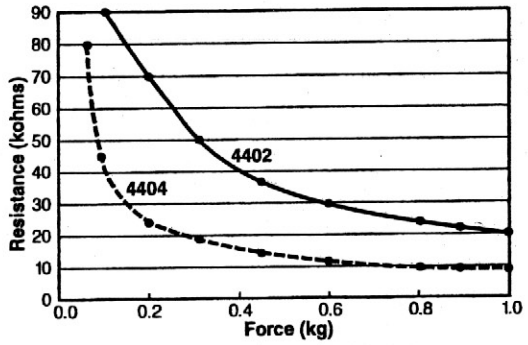
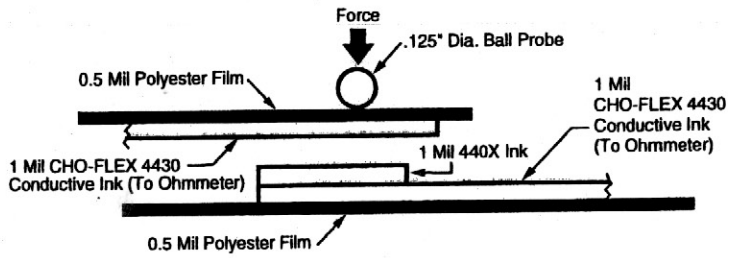


Figure 2



APPLICATION

Chomerics provides two standard products, CHO-FLEX 4407 and CHO-FLEX 4408. These two inks can be mixed in a variety of ratios to obtain different force-resistance curves. Table 1 offers some suggested mix ratios. CHO-FLEX 4407 is the "cooler" ink and CHO-FLEX 4408 is the "hotter" ink. Mixing more "hot" ink will make the resulting force-resistance curve drop.

The application of CHO-FLEX 440X inks is similar to most conductive inks. The ink is supplied as a two-part system (Parts 4407 and 4408), in a silk-screenable consistency. Thinning should be done as required with 60 parts Cellusolve Acetate and 40 parts Gamma Butyrolactone or other screening solvents.

Thorough mixing is required prior to screening. Screen sizes of 270 to 325 mesh are recommended for optimum ink screening. The ink should be cured at 250°F (121°C) for 15 minutes. Cure time and temperature are dependent on the types and amounts of thinners used, as well as oven variations.

The ink is generally conductive only in the direction of the applied force. Circuit design will often dictate that the force sensitive ink be applied directly on the conductive ink. Chomerics will provide custom-formulated thinners to meet specific application requirements.

ORDERING INFORMATION

Chomerics offers two standard products in the force sensitive, resistive ink family. These inks can be mixed at different ratios which will result in different force-resistance curves. CHO-FLEX 4407 and 4408 are offered in one pound packages as part numbers 54-01-4407-0000 and 54-01-4408-0000. Contact Chomerics for further information.

TABLE 1

Resulting Ink	Mix Ratios		
	4407	4408	Total
4402	86 pbw	14 pbw	100
4404	84 pbw	16 pbw	100

pbw = Parts By Weight

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