

Ink Composition For High-Quality/High-Definition Screen
Printing with Durability and Flexibility, Printed Matter
Produced by the Screen Printing Ink Composition, and
Method For Producing the Printed Matter

[NAME OF DOCUMENT] ABSTRACT

[Abstract]

[Problem]

In recent years, with the increasing diversity of printed matter design and higher definition of printed images by screen printing on electric and electronic parts composed of thermoplastic resin substrates and screen printing for graphics decoration, demand is increasing for more convenient and lower cost production of printed matter comprising both fine patterns and wide-area solid patterns. Also higher quality and higher definition of the visibility of printed images is desired that comprise both fine patterns and solid patterns, by improving the sharpness of the image edge sections in solid patterns while also obtaining a satisfactory leveling property. Furthermore, flexibility is desired for high-quality/high-definition printed matter to allow three-dimensional shape forming.

[Solution Means]

An ink composition for screen printing to be used onto a thermoplastic resin substrate that can produce printed matter comprising both a solid image pattern and a fine image pattern with the spreading width of no more than 10 μm from the image design dimensions of the printing plate at the edges or outlines of any section in the printed image, when producing printed

matter by screen printing onto a thermoplastic resin substrate using a 360-mesh screen printing plate formed by a high-strength, non-deforming stainless steel mesh with a filament diameter of 25 μm , wherein the measured flow radius value of the ink composition is 13.0 to 24.0 mm after 1 minute from the start of measurement by a flow property measuring method using a spread meter at 25°C according to JIS K5701-1:2000, the inequality "F60" - "F45" $\leq$ 1.0 mm is satisfied, wherein "F60" is defined as the measured flow radius value after 1 minute and "F45" is defined as the measured flow radius value after 45 seconds from the start of measurement by the flow property measuring method using the spread meter, the viscosity is 5 to 180 Pa·s as measured with a BH-type rotating viscosimeter at 25°C, the thixotropic index (TI value) is 2.0 to 8.0, the composition contains a solvent with a boiling point of not less than 170°C at not less than 70 mass% of the total solvent and a thermoplastic polymer with a weight-average molecular weight of not less than 4000 and with a Tg of 20 to 95°C at not less than 10 mass% with respect to the total ink composition, and that can produce printed matter, wherein the printed image coating film has an elongation percentage of not less than 250% under vacuum forming or pressure forming.

[No Fig.]