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BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte SANGHO CHO, GUORONG SUN,
KAREN L. WOOLEY, JAMES W. THACKERAY,
and PETER TREFONAS III

Appeal 2017-005339
Application 14/020,343
Technology Center 1700

Before TERRY J. OWENS, AVELYN M. ROSS, and
SHELDON M. McGEE, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

The Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 1–5. We have jurisdiction under 35 U.S.C. § 6(b).

The Invention

The Appellants claim a graft copolymer. Claim 1 is illustrative:

> 1. A graft block copolymer comprising:
> a first block polymer; the first block polymer comprising a backbone polymer and a first graft polymer; where the first graft polymer comprises a repeat unit comprising a surface energy reducing moiety chosen from a halocarbon containing moiety, a silicon containing moiety, or a combination of a halocarbon moiety and a silicon containing moiety; and

> a second block polymer; the second block polymer being covalently bonded to the first block; wherein the second block comprises the backbone polymer and a second graft polymer; where the second graft polymer comprises a functional group that is operative to undergo acid-catalyzed deprotection causing a change of solubility of the graft block copolymer in a developer solvent.

The Reference

Xia	US 2013/0324666 A1	Dec. 5, 2013

The Rejection

Claims 1–5 stand rejected under 35 U.S.C. § 103 over Xia.

OPINION

We affirm the rejection.

The Appellants argue the claims as a group (App. Br. 5–12). We therefore limit our discussion to one claim, i.e., claim 1, which is the sole independent claim. Claims 2–5 stand or fall with that claim. *See* 37 C.F.R. § 41.37(c)(1)(iv) (2012).

Xia's formulas FX4 and FX5 show a graft copolymer comprising a first block polymer having a backbone polymer (portion within ( )$_m$) and a first graft copolymer with an aryl repeat unit (portion within ( )$_p$) which, Xia indicates, can be fluorinated (¶¶ 141, 142, 154), and a second block polymer which is covalently bonded to the first block polymer and has a backbone polymer (portion within ( )$_n$) and a second graft polymer with an ester group repeat unit (portion within ( )$_q$) which is a functional group operative to undergo acid-catalyzed deprotection causing a change of solubility of the graft block copolymer in a developer solvent (Appellants' Spec. ¶ 37).

The Appellants assert that "the structure of Xia could contain a variety of different molecules that contain heteroatoms and none of these heteroatoms could be repeat units of a graft copolymer (that contain a surface energy reducing moiety) that is bonded to each repeat unit of a block polymer" (Reply Br. 4), and Xia is "so overly broad and vague that a skilled portion [sic, person] in the art could not arrive at the claimed invention" (*id.*).

Xia's disclosure that fluorine is an optional substituent in any aryl group (¶¶ 141, 142) would have led one of ordinary skill in the art, through no more than ordinary creativity, to use fluorine as an aryl group substituent in formulas FX4 and FX5. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (in making an obviousness determination one "can take account of the inferences and creative steps that a person of ordinary skill in the art would employ").

Thus, we are not persuaded of reversible error in the rejection.

DECISION/ORDER

The rejection of claims 1–5 under 35 U.S.C. § 103 over Xia is affirmed.

It is ordered that the Examiner's decision is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED