

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 14

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* WOLFGANG KAUFHOLD, JAMES W. ROSTHAUSER  
and JEFFREY S. WIGGINS

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Appeal No. 1999-1279  
Application 08/802,294

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ON BRIEF

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Before GARRIS, WARREN and OWENS, *Administrative Patent Judges*.  
OWENS, *Administrative Patent Judge*.

*DECISION ON APPEAL*

This is an appeal from the examiner's final rejection of claims 1-19, which are all of the claims in the application.

*THE INVENTION*

The appellants' claimed invention is directed toward a thermoplastic molding composition which includes a polyurethane resin made from specified reactants. Claim 1 is

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illustrative and is appended to this decision.

*THE REFERENCES*

Baack et al. (Baack) 1980	4,242,468	Dec. 30,
Nissen et al. (Nissen) 1983	4,383,050	May 10,
St. Clair 1996	5,486,570	Jan. 23,

*THE REJECTIONS*

Claims 1-19 stand rejected under 35 U.S.C. § 103 as being unpatentable over St. Clair in view of Baack and Nissen.

*OPINION*

We reverse the aforementioned rejection.

St. Clair discloses a polyurethane sealant or adhesive made by reacting an aliphatic or aromatic polyisocyanate and a saturated polyhydroxylated polydiene which preferably has two hydroxyl groups, one on each end of the polymer (col. 1, lines 34-49; col. 3, lines 46-48). Suitable peak molecular weights for a di-hydroxy polydiene polymer are between 1,000 and 40,000 (col. 5, lines 3-5). It is not disputed that St. Clair's polyisocyanate and di-hydroxylated polydiene polymer fall within the scope of, respectively, components (I) and (iii) in the appellants' claim 1.

Regarding polymeric diol component (ii) in the appellants' claim 1, the examiner argues that St. Clair discloses at columns 5 to 6 that polymeric diols, such as polyether diols, can be included in the composition (answer, page 3). The appellants argue that columns 5 to 6 of St. Claire disclose diols which fall within the scope of their chain extender component (iv) (specification, page 5, line 22 - page 6, line 2), but do not disclose polymeric diols (reply brief, page 2). The diols disclosed in columns 5 to 6 of St. Clair are "ethylene glycol, propylene glycol, butane diol, hexane diol and the like" (col. 6, lines 2-3). The examiner has not pointed out, and we do not find, where polymeric diols are disclosed.

The examiner also relies upon Baack (col. 5, lines 21-24) for a disclosure of polymeric diols (answer, page 4). Baack, however, is directed toward the use of a monohydroxylated polybutadiene as a reactive plasticizer in the preparation of solid or foam polyurethanes from polyisocyanates and polyols

(col. 1, lines 7-10; col. 2, lines 44-45). The examiner does not explain, and it is not apparent, why the applied prior art would have led one of ordinary skill in the art to include, as a

component of St. Clair's composition for making polyurethane adhesives and sealants, a polymeric diol which Baack uses to make solid or foam polyurethanes.

Nissen discloses flexible polyurethane elastomers for making shoe soles that have low temperature flexibility (col. 2, lines 24-29). The disclosures in Nissen relied upon by the examiner (answer, page 4) are that polyurethanes made using linear polyesters have greater physical strength and lesser susceptibility to the effects of light and oxidation than do polyurethanes made using polyether polyols, and that polyester polyols have a low glass transition temperature and thus good stability when exposed to cold in the amorphous state in polyurethane elastomers, but have an increased tendency to crystallize which results in poorer low temperature flexibility of those elastomers (col. 1, lines 45-61).

The examiner argues that it would have been obvious to one of ordinary skill in the art, in view of these teachings by Nissen, to advantageously use a polyester polyol in St. Clair's composition to obtain effects which are the same as or similar to those disclosed by Nissen (answer, page 5). The examiner, however, does not explain why Nissen's disclosure of relative

properties of polyurethanes made using linear polyesters versus polyether polyols would have led one of ordinary skill in the art to add a polyester polyol to a composition for making a polyurethane adhesive or sealant. Also, the examiner does not explain why one of ordinary skill in the art would have considered the presence of a component which has good low temperature stability in polyurethane elastomers but causes reduced low temperature flexibility in such elastomers, to be beneficial in an adhesive or sealant composition.

For the above reasons, the examiner's explanation as to why the applied prior art would have fairly suggested, to one of ordinary skill in the art, including a polymeric diol in St. Clair's composition is inadequate. The examiner,

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therefore, has not carried the burden of establishing a *prima facie* case of obviousness of the appellants' claimed invention. Consequently, we reverse the examiner's rejection.

*DECISION*

The rejection of claims 1-19 under 35 U.S.C. § 103 over St. Clair in view of Baack and Nissen is reversed.

*REVERSED*

BRADLEY R. GARRIS )  
Administrative Patent Judge )  
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 ) BOARD OF PATENT  
CHARLES F. WARREN )  
Administrative Patent Judge ) APPEALS AND

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)  
) INTERFERENCES  
)  
) TERRY J. OWENS  
) Administrative Patent Judge  
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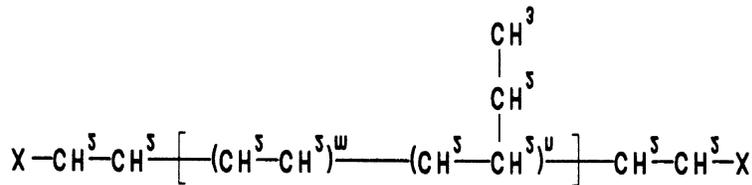
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APPENDIX

1. A thermoplastic molding composition comprising a polyurethane resin, the reactants used in its preparation comprise

- (I) at least one member selected from the group consisting of aliphatic and aromatic diisocyanates,
- (ii) at least one polymeric diol having a number average molecular weight of 500 to 10,000, selected from the group consisting of polyester terminated copolymers of dialkyl siloxane and alkylene oxides,
- (iii) a reactive polyolefin containing isocyanate-reactive groups identical one to the other forming to



where X denotes an isocyanate-reactive group identical one to the other selected from the group consisting of hydroxyl, amine and carboxylic acid functional groups, and where m is about 0 to 550 and n is about 0 to 270 and the number average molecular

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weight of said reactive polyolefin is about 500 to 15,000 g/mol and its functionality is in the range of about 1.7 to 2.5, and

(iv) a chain extender,

with the proviso that said (iii) is present in an amount of at least 1.0 equivalent % relative to the amount of said (ii).