

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 19

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte EDWARD J.A. POPE and JOHN D. MACKENZIE

Appeal No. 1997-0818
Application No. 08/102,470

ON BRIEF

Before JOHN D. SMITH, GARRIS, and WALTZ, Administrative Patent Judges.

JOHN D. SMITH, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal pursuant to 35 U.S.C. § 134 from the final rejection of claims 1 through 7.

The subject matter on appeal is directed to a process for making a porous ceramic composite having a bimodal pore size

Appeal No. 1997-0818
Application No. 08/102,470

distribution. Appellants' claimed method includes the steps of mixing an organosilicon precursor, water, a catalyst, and, importantly, particles of a combustible material (e.g., ethyl cellulose, acrylic polymer beads, sawdust or graphite) having a diameter in a range of 500 angstroms to 500 microns to form a mixture, pouring the mixture into a mold, allowing the mixture to gel to form a ceramic composite, drying the ceramic composite and heating the ceramic composite in either air or oxygen at a temperature range which is sufficiently high enough to burn away the combustible material particles.

Further details of the appealed process are shown in representative appealed claim 1 which is reproduced below:

1. A process for making a porous ceramic composite with a bimodal pore size distribution comprising the steps of:

a. mixing an organosilicon precursor from a group consisting of tetramethoxysilane, tetraethoxysilane, tetrapropoxysilane and tetrabutoxysilane, water, a catalyst and particles of a combustible material having a diameter in a range of 500 angstroms to 500 microns to form a mixture;

b. pouring said mixture into a mold;

c. allowing said mixture to gel to form a ceramic composite;

d. drying said ceramic composite; and

e. heating said ceramic composite in either air or oxygen to burn away said particles of said combustible material.

Appeal No. 1997-0818
Application No. 08/102,470

The references of record relied upon by the examiner are:

Fox et al. (Fox) 1989	4,818,732	Apr. 4,
MacKenzie et al. (MacKenzie) 1, 1993	5,215,942	Jun.

The appealed claims stand rejected under 35 U.S.C. § 103 as unpatentable over MacKenzie in view of Fox.

We cannot sustain the stated rejection.

In contending that the process defined by appealed claim 1 finds substantial identical correspondence in the disclosure of the primary reference, MacKenzie, the examiner implicitly argues that diamond particles in MacKenzie's reaction mixture are "particles of a combustible material" which form a component of a ceramic composite which are burned away when the composite is heated "in either air or oxygen." Particularly, compare step e) of appealed claim 1.

In traversing the examiner's stated rejection based principally on the MacKenzie prior art disclosures, appellants explain in their briefs that the fundamental purpose of MacKenzie's invention is to incorporate diamond particles into a ceramic composite, not to "burn away" the particles by heating the ceramic in an air or oxygen atmosphere. Moreover, while MacKenzie recognizes that diamond may decompose to

Appeal No. 1997-0818
Application No. 08/102,470

graphite when heated above 1000EC and that diamond oxidizes at temperatures above about 600EC (see MacKenzie at column 2, lines 62 through 67), it is clearly MacKenzie's purpose to both avoid oxidation and graphitization when heating the porous composite. Compare MacKenzie at column 6, lines 31 through 43; column 7, lines 32 through 37; MacKenzie's patented claims 1 and 15. Thus, the examiner's ultimate legal conclusion of obviousness based primarily on the MacKenzie's disclosures is based on an erroneous factual finding, i.e., that MacKenzie's diamond particles are "particles of a combustible material" which are burned away "in either air or oxygen" during the heating of the ceramic composite. The examiner's stated obviousness rejection of the appealed claims based on MacKenzie is further undermined by MacKenzie's failure to disclose that any porous ceramic composite incorporating diamond therein possesses a bimodal pore size distribution as required by the appealed process. Since the examiner's "secondary reference" to Fox has not been relied on in the manner which remedies the basic deficiencies in MacKenzie, we are constrained to reverse the stated rejection of the appealed claims based on the combined teachings of

Appeal No. 1997-0818
Application No. 08/102,470

MacKenzie and Fox.

Appeal No. 1997-0818
Application No. 08/102,470

The decision of the examiner is reversed.

REVERSED

	John D. Smith)	
	Administrative Patent Judge)	
)	
)	
)	
	Bradley R. Garris)	BOARD OF
PATENT)	
	Administrative Patent Judge)	APPEALS AND
)	INTERFERENCES
)	
)	
	Thomas A. Waltz)	
	Administrative Patent Judge)	

JDS:tdl

Appeal No. 1997-0818
Application No. 08/102,470

W. Edward Johansen
11661 San Vicente Blvd.
Los Angeles, CA 90049