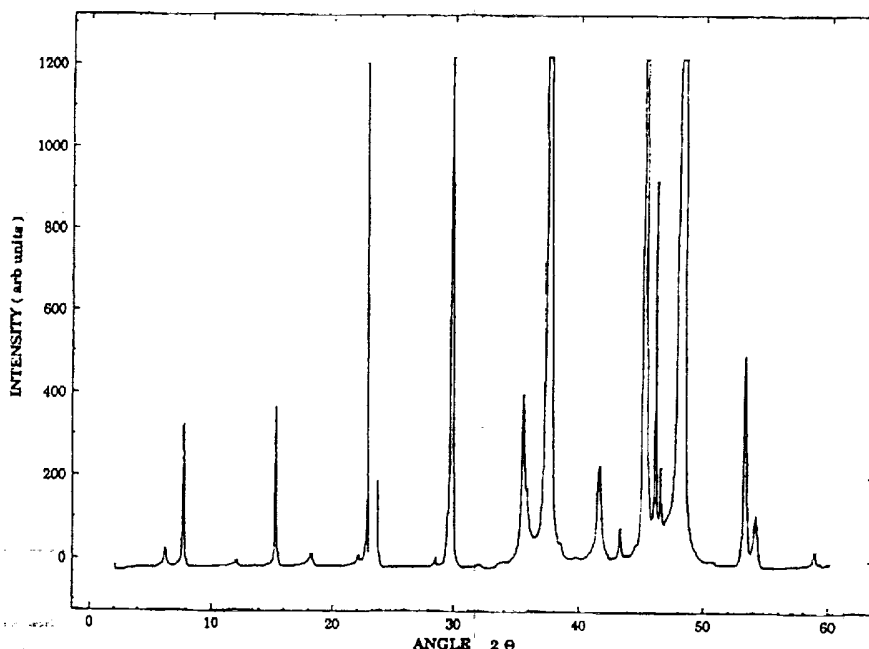




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁵ : H01L 39/24	A3	(11) International Publication Number: WO 94/18361 (43) International Publication Date: 18 August 1994 (18.08.94)
(21) International Application Number: PCT/US93/00607 (22) International Filing Date: 29 January 1993 (29.01.93) (71) Applicant: E.I. DE PONT DE NEMOURS AND COMPANY [US/US]; 1007 Market Street, Wilmington, DE 19898 (US). (72) Inventors: BLANCHET-FINCHER, Graciela, Beatriz; 2005 Fairwood Lane, Wilmington, DE 19810 (US). FINCHER, Curtis, Robinson, Jr.; 2005 Fairwood Lane, Wilmington, DE 19810 (US). HERRON, Norman; 408 Apple Road, Newark, DE 19711 (US). (74) Agents: MAYER, Nancy, S. et al.; E.I. du Pont de Nemours and Company, Legal/Patent Records Center, 1007 Market Street, Wilmington, DE 19898 (US).	(81) Designated States: AU, CA, JP, KR, NO, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> (88) Date of publication of the international search report: 08 December 1994 (08.12.94)	

(54) Title: **PROCESS FOR MAKING FILMS AND CIRCUIT ELEMENTS OF HIGH TEMPERATURE SUPERCONDUCTORS CONTAINING THALLIUM AND LEAD**



(57) Abstract

A process making thin film elements of an oxide superconductor $(\text{Tl}_{1.5}\text{Pb}_{0.5})\text{Sr}_2\text{CaCu}_2\text{O}_7$, $(\text{Tl}_{1.5}\text{Pb}_{0.5})\text{Sr}_2\text{Ca}_2\text{Cu}_3\text{O}_9$ or a mixture thereof. The process entails forming an oxide film of a mixture of oxides of Pb, Sr, Ca and Cu in preselected amounts, placing the oxide film in a container of nonreactive metal such as gold that contains a powder of $(\text{Tl}_{1.5}\text{Pb}_{0.5})\text{Sr}_2\text{Ca}_2\text{Cu}_3\text{O}_9$ superconductor, sealing the container, and heating the sealed container to a temperature of about 820 °C to about 950 °C for at least 1 minute.

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AT	Austria	GB	United Kingdom	MR	Mauritania
AU	Australia	GE	Georgia	MW	Malawi
BB	Barbados	GN	Guinea	NE	Niger
BE	Belgium	GR	Greece	NL	Netherlands
BF	Burkina Faso	HU	Hungary	NO	Norway
BG	Bulgaria	IE	Ireland	NZ	New Zealand
BJ	Benin	IT	Italy	PL	Poland
BR	Brazil	JP	Japan	PT	Portugal
BY	Belarus	KE	Kenya	RO	Romania
CA	Canada	KG	Kyrgyzstan	RU	Russian Federation
CF	Central African Republic	KP	Democratic People's Republic of Korea	SD	Sudan
CG	Congo	KR	Republic of Korea	SE	Sweden
CH	Switzerland	KZ	Kazakhstan	SI	Slovenia
CI	Côte d'Ivoire	LI	Liechtenstein	SK	Slovakia
CM	Cameroon	LK	Sri Lanka	SN	Senegal
CN	China	LU	Luxembourg	TD	Chad
CS	Czechoslovakia	LV	Latvia	TG	Togo
CZ	Czech Republic	MC	Monaco	TJ	Tajikistan
DE	Germany	MD	Republic of Moldova	TT	Trinidad and Tobago
DK	Denmark	MG	Madagascar	UA	Ukraine
ES	Spain	ML	Mali	US	United States of America
FI	Finland	MN	Mongolia	UZ	Uzbekistan
FR	France			VN	Viet Nam
GA	Gabon				

INTERNATIONAL SEARCH REPORT

Intern. Appl. No.

PCT/US 93/00607

A. CLASSIFICATION OF SUBJECT MATTER

IPC 5 H01L39/24

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 5 H01L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO,A,92 22921 (DU PONT) 23 December 1992 see abstract; example 1 ---	1
X	APPLIED PHYSICS LETTERS, 21 MAY 1990, USA, VOL. 56, ISSN 0003-6951, LIU R S ET AL 'Formation of superconducting (Tl,Bi)Sr/sub 2/CaCu/sub 2/O/sub y/ thin films by RF sputtering and thallium diffusion' see the whole document ---	1
X	PATENT ABSTRACTS OF JAPAN vol. 015 no. 474 (C-0890) ,3 December 1991 & JP,A,03 205308 (SUMITOMO ELECTRIC IND LTD) 6 September 1991, see abstract -----	1

☐ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents :

- 'A' document defining the general state of the art which is not considered to be of particular relevance
- 'E' earlier document but published on or after the international filing date
- 'L' document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- 'O' document referring to an oral disclosure, use, exhibition or other means
- 'P' document published prior to the international filing date but later than the priority date claimed

'T' later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

'X' document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

'Y' document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

'&' document member of the same patent family

Date of the actual completion of the international search

14 October 1994

Date of mailing of the international search report

27. 10. 94

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+ 31-70) 340-2040, Tx. 31 651 epo nl,
Fax (+ 31-70) 340-3016

Authorized officer

Pelsers, L

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 93/00607

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO-A-9222921	23-12-92	US-A- 5260251	09-11-93
		AU-A- 2185992	12-01-93
		CA-A- 2109962	23-12-92
		EP-A- 0587772	23-03-94
		US-A- 5342828	30-08-94
