

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
31 August 2006 (31.08.2006)

PCT

(10) International Publication Number  
**WO 2006/091223 A3**

(51) International Patent Classification:

**G01J 3/44** (2006.01) **G01N 21/00** (2006.01)  
**G01J 3/30** (2006.01) **G01N 15/02** (2006.01)  
**G01J 3/40** (2006.01) **G01B 11/04** (2006.01)

(21) International Application Number:

PCT/US2005/023705

(22) International Filing Date: 30 June 2005 (30.06.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

10/882,082 30 June 2004 (30.06.2004) US  
60/584,719 30 June 2004 (30.06.2004) US  
11/000,841 30 November 2004 (30.11.2004) US

(71) Applicant (for all designated States except US):  
**CHEMIMAGE CORPORATION** [US/US]; 7301  
Penn Avenue, Pittsburgh, PA 15208 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **NEISS, Jason**  
[US/US]; 113 Ivy Street, Pittsburgh, PA 15218 (US).  
**NELSON, Matthew, P.** [US/US]; 425 Manor-Harrison  
City Road, Harrison City, PA 15636 (US). **TREADO,**  
**Patrick** [US/US]; 315 S. Lexington Avenue, Pittsburgh,

PA 15208 (US). **SCHWEITZER, Robert** [US/US]; 245  
Knickerbocker Drive, Pittsburgh, PA 15235 (US).

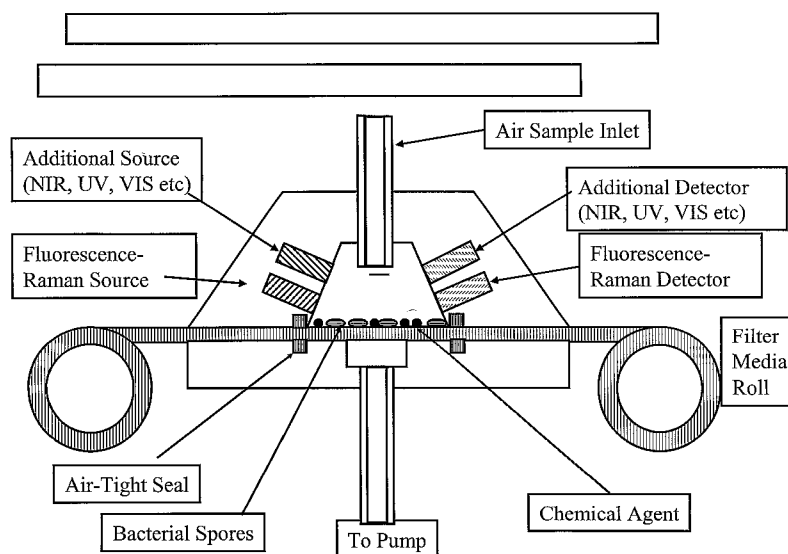
(74) Agents: **GOLUB, Daniel, H.** et al.; Morgan Lewis &  
Bockius LLP, 1701 Market Place, Philadelphia, PA 19103  
(US).

(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA,  
MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ,  
OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL,  
SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC,  
VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every  
kind of regional protection available): ARIPO (BW, GH,  
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,  
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,  
FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO,  
SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN,  
GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: MULTIMODAL METHOD FOR IDENTIFYING HAZARDOUS AGENTS



(57) Abstract: The invention relates to apparatus and methods for assessing occurrence of a hazardous agent in a sample by performing multimodal spectral analysis of the sample. Methods of employing Raman spectroscopy for entities in a sample which exhibit one or more optical properties characteristic of a hazardous agent are disclosed. Devices and systems suitable for performing such methods are also disclosed.

WO 2006/091223 A3



**Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

**(88) Date of publication of the international search report:**

22 March 2007

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US05/23705

## A. CLASSIFICATION OF SUBJECT MATTER

IPC: G01J 3/44( 2007.01),3/30( 2007.01),3/40( 2007.01);G01N 21/00( 2007.01),15/02( 2007.01);G01B 11/04( 2007.01)

USPC: 356/301,317,303,244,336,342,635

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)

U.S. : 356/301,317,303,244,336,342,635

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 practicable, 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 --- Y	US 5,442,438 A (BATCHELDER et al) 15 August 1995 (15.08.1995), See columns 1-5, 11, 12.	32-38,41,42 ----- 1-13,22-27
Y	US 5,638,166 A (FUNSTEN et al) 10 June 1997 (10.06.1997), See columns 3-5.	45-48
Y	US 5,759,859 A (SAUSA) 2 June 1998 (02.06.1998), See entire document.	1-13, 22-27
Y	US 5,866,430 A (GROW) 2 February 1999 (02.02.1999), See Abstract, Figure 1, columns 37, 38.	45-49

☐ Further documents are listed in the continuation of Box C.

☐ See patent family 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 application or patent 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

26 October 2006 (26.10.2006)

Date of mailing of the international search report

22 JAN 2007

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Facsimile No. (571) 273-3201

Authorized officer

Angela Ortiz

Telephone No. (571) 272-2800