TULSA (Petroleum Abstracts for Subscribers)/ **TULSA2** (Petroleum Abstracts for Non-Subscribers)

STN® THE CHOICE OF PATENT EXPERTS™

Subject Coverage

- Alternate Fuels and Energy Sources
- Drilling
- Ecology and Pollution Geochemistry
- Geology
- Geophysics
- Mineral Commodities
- Petroleum Exploration, Production, and Development
- Pipelining and Storage
- Production of Oil and Gas
- Reservoir Engineering and Recovery Methods
- Supplemental Technology
- Well Completion and Services
- Well Logging

File Type

Bibliographic

Access

- TULSA – Available only to Petroleum Abstracts Subscribers.
- TULSA2 – For Petroleum Abstracts non-subscribers

Features

Thesauri	Controlled Term (/CT) International Patent Classification (/IPC)				
Alerts (SDIs)	Weekly and Monthly (Weekly is the default) (TULSA only)				
CAS Registry Number® Identifiers	☐	Page Images	☐	STN® AnaVist™	☐
Keep & Share	☑	SLART	☑	STN Easy®	☐
Learning Database	☐	Structures	☐		

Record Content

- Bibliographic information
- Abstract (TULSA only)
- Indexing Terms

File Size

More than 1.2 million records (2/2016)

Coverage

1965-present

Updates

Weekly

Language

English

Database Producer

Petroleum Abstracts
The University of Tulsa
800 S. Tucker Dr., JRH 1520
Tulsa, OK 74104-3189 USA
Phone: 800-247-8678 (US and Canada)
918-631-2297 (Outside US and Canada)
Fax: 918-631-2100
Email: pa@utulsa.edu
URL: http://www.pa.utulsa.edu/

Database Supplier

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STN Europe
P.O. Box 2465
76012 Karlsruhe
Germany
Phone: +49-7247-808-555
Fax: +49-7247-808-259
Email: helpdesk@fiz-karlsruhe.de

Sources

- Conferences
- Government Reports
- Journals
- Monographs
- Patents
- Theses

User Aids

- Online Helps (HELP DIRECTORY lists all help messages available)
- STNGUIDE

Clusters

- ALLBIB
- AUTHORS
- CHEMISTRY
- CORPSOURCE
- ENGINEERING
- ENVIRONMENT
- FUELS
- GEOSCIENCE
- HPATENTS
- PATENTS
- PETROLEUM

STN Database Clusters information (PDF).

Pricing

Enter HELP COST at an arrow prompt (=>).

Search and Display Field Codes

The fields that allow left truncation in this file are indicated by an asterisk (*).

Search Field Name	Search Code	Search Examples	Display Codes
Basic Index * (contains single words from the title (TI), abstract (AB), controlled term (CT), and subject heading (SH) fields	None (or /BI)	S RESCUE S OFFSHORE INSTALLATION# S SODIUM (L) SULFATE S ?STRUCT?	AB, CT, RN, SH, TI
Abstract * **(1)**	/AB	S COST/AB S ?SHORE?/AB S (?SHORE?(S)?STRUCT?)/AB	AB
Accession Number	/AN	S 2006:9998/AN S 1998:10004/AN	AN
Application Country (code and text)	/AC	S FR/AC S GERMANY/AC	AI
Application Date **(2)**	/AD	S GB/AC AND 20050601-20060531/AD	AI
Application Number **(3)**	/AP	S GB1995-10434/AP S 1995GB-10434/AP	AI
Application Number, Original	/APO	S AR251,904/APO	AIO
Application Year **(2)**	/AY	S AY>=2003	AI
Author (includes inventor)	/AU	S LINDSEY J?/AU	AU, IN
Classification Code **(4)**	/CC	S WELL SURVEYING/CC	CC
Controlled Term **(5)** (includes major terms and subject headings)	/CT	S TAX/CT S SEISMIC ENERGY+BT/CT S *FAULT PATTERN/CT	CT
Controlled Word (contains single words from the controlled term (CT) and subject heading (SH) fields)	/CW	S SURFACT?/CW S CRITICAL MICELLE/CW	CT, SH
Corporate Source **(4)** (includes patent assignee)	/CS	S SERV? EQUIP?/CS	CS, PA
Cross reference	/CR	S 100086/CR	CR
Digital Object Identifier	/FTDOI		FTDOI, SO
Document Number (Petroleum Abstracts accession number)	/DN	S 273659/DN	DN
Document Type (code and text)	/DT (or /TC)	S L1 AND P/DT S L1 AND PATENT/DT	DT
Entry Date **(1)**	/ED (or /UP)	S 20000100-20000300/ED	ED
Field Availability	/FA	S CN/FA AND L5	FA
International Patent Classifications **(2,5)**	/IPC	S A01B/IPC	IPC
International Standard (Document) Number (contains ISBN and ISSN)	/ISN	S 3-936418-04-7/ISN S 0920-4105/ISN	ISN, SO
Inventor	/IN	S IRVINE R L/IN	AU, IN
Journal Title	/JT	S J PETROL SCI ENG/JT	JT, SO

Search and Display Field Codes (cont'd)

Search Field Name	Search Code	Search Examples	Display Codes
Language (code and text)	/LA	S DE/LA	LA
Meeting Title	/MT	S (ALTERNAT? ENERGY AND MIAMI)/MT	MT, SO
Number of Report	/NR	S SPE-10006/NR	NR, SO
Patent Assignee **(4)**	/PA	S PECHORA DES/PA	CS, PA
Patent Country (code and text)	/PC	S GB/PC	PI
Patent Kind Code	/PK	S USB1/PK	PI
Patent Number **(3)**	/PN	S EP100099/PN	PI
Patent Number/Kind Code	/PNK	S EP100099/PNK	PNK
Priority Application Country (code and text)	/PRC	S PORTUGAL/PRC S PT/PRC	PRAI
Priority Application Date **(2)**	/PRD	S 19951210/PRD	PRAI
Priority Application Number **(3)**	/PRN	S 1976PL-0192149/PRN	PRAI
Priority Number, Original	/PRNO	S PL167,241/PRNO	PRAO
Priority Application Year **(3)**	/PRY	S 2001-2005/PRY	PRAI
Publication Date **(2)**	/PD	S 20040111/PD S PD>=19990600 S OCT 31,1999-DEC 31, 1999/PD	PI, SO
Publication Year **(2)**	/PY	S PY>=2004	PY
Source (contains journal title, collation information (volume, issue, pages, number of references), number of report, publication date, meeting information (title, location, date), publisher, publisher location, ISSN, ISBN, patent information, application information, priority information, information patent classifications, pages, and claims)	/SO	S (PETROL AND V 48)/SO S (SPE AND MTG)/SO AND 1995-1996/PY	SO
Subject Heading	/SH	S STRATIGRAPHIC MAPPING/SH	SH
Title *	/TI	S WELL CEMENT/TI S ?DRILL?/TI	TI
Update Date	/UP	S 20110209/UP	ED

(1) TULSA only.
(2) Numeric search field that may be searched with numeric operators or ranges.
(3) Either STN format or Derwent format may be used.
(4) Search with implied (S) proximity is available in this field.
(5) There is an online thesaurus associated with this field.

Super Search Fields

Enter a super search code to execute a search in one or more fields that may contain the desired information. Super search fields facilitate crossfile and multifile searching. EXPAND may not be used with super search fields. Use EXPAND with the individual field codes instead.

Search Field Name	Search Code	Fields Searched	Search Examples	Display Codes
Patent Application and Patent Priority Number **(1)**	/APPS	/AP, /PRN	S US1970-25003/APPS	AI, PRAI
Patent Countries	/PCS	/PC	S DE/PCS	PI
Patent Numbers **(1)**	/PATS	/PN	S EP536950/PATS	PI

(1) Either STN format or Derwent format may be used.

Limiting Search Codes

Search results may be restricted to the following search area in the TULSA File. Only an L-number for an answer set created in TULSA may be limited.

Search Field Name	Search Code	Search Examples
Major descriptor	/MAJOR **(1)**	S L1/MAJ

(1) The code may be abbreviated to the first three letters.

Property Fields[1)]

In TULSA/TULSA2 a numeric search for a specific set of physical properties (/PHP) is available within the abstract and title fields. The numeric values are not displayed as single fields, but highlighted within the hit displays.

Use EXPAND/PHP to search for all available physical properties. A search with the respective field codes will be carried out in all database fields with English text. The /PHP index contains a complete list of codes and related text for all physical properties available for numeric search.

Field Code	Property	Unit	Symbol	Search Examples
/AOS	Amount of substance	Mol	mol	S 10 /AOS
/BIR	Bit Rate	Bit/Second	bit/s	S 330/BIR
/BIT	Stored Information	Bit	Bit	S BIT > 3 MEGABIT
/CAP	Capacitance	Farad	F	S 1-10 MF/CAP
/CDN	Current Density	Ampere/Square Meter	A/m^2	S CDN>10 A/M**2
/CMOL	Molarity, Molar Concentration	Mol/Liter	mol/L	S UREA/BI (S) 2/CMOL
/CON	Conductance	Siemens	S	S 1S-3/CON
/DB	Decibel	Decibel	dB	S DB>50
/DEG	Degree	Degree	°	S LOW LATITUDE/BI (S) 30/DEG
/DEN	Density (Mass Concentration	Kilogram/Cubic Meter	kg/m^3	S ANTIBODY/CLM (S) 5E-3-10E-3/DEN
/DEQ	Dose Equivalent	Sievert	Sv	S 2/DEQ
/DOS	Dosage	Milligram/Kilogram	mg/kg	S DOS>0.8
/DV	Viscosity, dynamic	Pascal * Second	Pa * s	S DV>10
/ECD	Electric Charge Density	Coulomb/Square Meter	C/m^2	S 1 C/M**2 /ECD
/ECH	Electric Charge	Coulomb	C	S 2-3/ECH
/ECO	Electrical Conductivity	Siemens/Meter	S/m	S ECO>800 S/M (5A) METAL
/ELC	Electric Current	Ampere	A	S 1-10/ELC
/ELF	Electric Field	Volt/Meter	V/m	S 1-300/ELF
/ENE	Energy	Joule	J	S TORQUE (5A) 20 - 30 /ENE
/ERE	Electrical Resistivity	Ohm * Meter	Ohm * m	S ERE>2
/FOR	Force	Newton	N	S 50 N /FOR
/FRE	Frequency	Hertz	Hz	S OSCILLAT?/BI (S) 1- 3/FRE
/IU	International Unit	none	IU	S IU>1000 (P) ANTIBIOTIC
/KV	Viscosity, kinematic	Square Meter/Second	m^2/s	S SILICON?/BI (5A) 10E-5 M**2/S /KV
/LEN (or /SIZ)	Length, Size	Meter	m	S 1-4/LEN
/LUME	Luminous Emittance, Illuminance	Lux	lx	S 10-50/LUME
/LUMF	Luminous Flux	Lumen	Lm	S LUMF>10
/LUMI	Luminous Intensity	Candela	cd	S LUMI<4
/M	Mass	Kilogram	kg	S ALLOY/BI (30A) 1E-10-1E-5/M
/MCH	Mass to Charge Ratio	none	m/z	S MCH=50

Property Fields[1] (cont'd)

Field Code	Property	Unit	Symbol	Search Examples
/MFD (or /MFS)	Magnetic Flux Density	Tesla	T	S MFD>102
/MFR (or /MFL)	Mass Flow Rate	Kilogram/Second	kg/s	S MFR<0.1
/MM	Molar Mass	Gram/Mol	g/mol	S 2000-3000 G/MOL/MM
/MOLS	Molality of Substance	Mol/Kilogram	mol/kg	S 01.-10 MOL/KG/MOLS
/MVR	Melt Volume Rate, Melt Flow Rate	none	g/10 min	S 3/MVR
/NUC	Nutrition Content	none	g/100 kcal	S NUC<100 (P) NUTRIENT
/PER	Percent (Proportionality)	none	%	S POLYMER?/AB (5A) 4/PER
/PERA	Permittivity, Absolute	Farad/Meter	F/m	S DIELECTRIC/BI (S) 4- 4.1/PERA
/PHV	pH Value	pH	pH	S 7.4-7.6/PHV
/POW	Power	Watt	W	S MICROWAVE/BI (S) POWER/BI (S) 350 WATT/POW
/PRES (or /P)	Pressure	Pascal	Pa	S (VACUUM (5A) DISTILL?)/BI (S) 1000-1100/PRES
/RAD	Radioactivity	Becquerel	Bq	S RAD/PHP
/RES	Electrical Resistance	Ohm	Ohm	S ELECTRICAL/BI (S) 10-100/RES
/RSP	Rotational Speed	Revolution/Minute	rpm	S 2-100/RSP (S) MACHINE/AB
/SAR	Area /Surface Area	Square Meter	m^2	S (COATING? OR FOIL?)/BI (S) 10-100/SAR
/SOL	Solubility	Gram/100 gram	g/100 g	S SOL>20 (10W) WATER
/STSC	Surface Tension	Joule /Square Meter	J/m^2	S 60 J/M**2/STSC
/TCO	Thermal Conductivity	Watt/Meter * Kelvin	W/m * K	S 1/TCO (S) HEAT?
/TEMP (or /T)	Temperature	Kelvin	K	S (HEAT? (10A) LIQUID?) (S) 5/TEMP
/TIM	Time	Second	s	S ?INCUB?/BI (10A) 10-50/TIM
/VEL (or /V)	Velocity	Meter per Second	m/s	S REDUC?/BI (S) 1E-3-5E-3/VEL
/VELA	Velocity, angular	Radian/Second	rad/s	S VELA>10
/VLR	Volumetric Flow Rate	Cubic Meter/Second	m^3/s	S 1-2/VLR (5A) POWDER
/VOL	Volume	Cubic Meter	m^3	S 1E-8-2E-8/VOL.EX
/VOLT	Voltage	Volt	V	S POTENTIAL/CLM (10A) 5E-3 V <VOLT<7E-3 V

1) Exponential format is recommended for the search of particularly high or low values, e.g. 1.8E+7 or 1.8E7 (for 18000000) or 9.2E-8 (for 0.000000092).

Controlled Term (/CT) Thesaurus

There is an exploration and production and geographic term thesaurus available in the Controlled Term (/CT) field. All Relationship Codes can be used with either the SEARCH or EXPAND command.

Relationship Code	Content	Example
ALL	All associated terms (BT, SELF, NOTE, USE, USE+, UF, UF+, NT, RT)	E PIPELINE+ALL/CT
BT	Broader Terms (BT, SELF, NOTE)	S COLNETT BASIN+BT/CT
HIE	Hierarchy terms (all Broader and Narrower Terms) (BT, SELF, NOTE, NT)	E SUBATOMIC PARTICLE+HIE/CT
KT	Keyword Terms (Multiword phrases containing the term) (SELF, KT)	E POWER+KT/CT
NOTE	Notes (SELF, NOTE)	E RESERVOIR BOUNDARY+NOTE/CT
NT	Narrower Terms (SELF, NOTE, NT)	E DEPOSIT+NT/CT
PFT	All Preferred and Forbidden Terms (SELF, UF, UF+, USE, USE+)	E LAND TOPOLOGY+PFT/CT
RT	Related Terms (SELF, RT)	E CLAY CHEMISTRY+RT/CT
STD	All Broader, Narrower, and Related Terms (BT, SELF, NOTE, NT, RT)	E FUEL+STD/CT
UF	Used For terms (Forbidden Terms) (SELF, UF, UF+)	E ABANDONMENT+UF/CT
USE	Use terms (Preferred Terms) (SELF, USE, USE+)	E CROSS FRACTURE+USE/CT

International Patent Classification (/IPC) Thesaurus

The following Relationship Codes may be used with the EXPAND and SEARCH commands in the /IPC field:

Relationship Code	Description	Example
ALL	All associated terms	E A63B0023-04+ALL/IPC
ADV	Advanced level IPC codes	E A63B0023-00+ADV/IPC
BRO	Complete class	E B015+BRO/IPC
BT	Broader term	E B01B0001-02+BT/IPC
COR	Core level IPC codes	E B01B0001-02+CORE/IPC
ED	Complete title of the SELF term and IPC manual edition	
HIE	Hierarchy terms (all broader and narrower terms)	E A61Q0001-00+HIE/IPC
INDEX	Complete title of the SELF term	E E21D+INDEX/IPC
KT	Keyword term	E BOREHOLIST+KT/IPC
NEXT	Next classification	E E21D+NEXT/IPC
NT	Narrower term	E E21B0043-00+NT/IPC
PREV	Previous classification	E G01N0001-08+PREV/IPC
RT	Related term	E E10M0113-10+RT/IPC
TI	Complete title of the SELF term and Broader Terms	E C10M0113-10+TI/IPC

DISPLAY and PRINT Formats

Any combination of display formats listed below may be used to display or print answers. Multiple codes must be separated by spaces or commas, e.g., D L1 1-5 TI AU, D L1 1-5 TI, AU. The fields are displayed in the order requested.

Hit-term highlighting is available in all fields. Highlighting must be on during SEARCH to use the HIT, KWIC, and OCC formats.

Format	Content	Examples
AB **(1)**	Abstract	D L4 1-4 AB
AI (AP)	Application Information	D L1 3 AI PI
AIO (APO)	Application Information, Original	D AIO
AN	Accession Number	D AN 1,3-5
AU	Author or Inventor	D 1-3,7,8 AU
CC	Classification Code	D CC 1-
CR	Cross reference	D CR 1-5
CS	Corporate Source or Patent Assignee	D L3 CS 3
CT	Controlled Term (includes SH)	D 1 3 6,8 CT
DN	Document Number (Petroleum Abstracts accession number)	D DN
DT (TC)	Document Type	D DT
ED	Entry Date	D ED
FTDOI **(2)**	Digital Object Identifier	D FTDOI
IPC	International Patent Classification	D IPC
IN	Inventor	D IN PA
ISN **(2)**	International Standard (Document) Number (ISBN or ISSN)	D ISN 3 4
JT **(2)**	Journal Title	D JT
LA	Language	D TI LA
MT **(2)**	Meeting Title	D L3 MT
NR	Number of Report	D NR
PA	Patent Assignee	D L3 4 PA PI
PI (PN, PATS)	Patent Information	D PI
PRAI (PRN)	Priority Information	D PRAI
PY **(2)**	Publication Year	D PY
SH	Subject Heading	D SH
SO	Source	D SO
TI	Title	D TI 1-10
UP	Update Date	D UP
ABS	AB	D ABS
ALL	AN, DN, CR, TI, AU, IN, CS, PA, PI, AI (AIO), PRAI (PRAO), NR, SO, DT, LA, ED, AB, IPC, CC, SH, CT	D 1-5 ALL
DALL	ALL, delimited for post processing	D DALL
IALL	ALL. indented with text labels	D IALL
APPS	AI, PRAI	D APPS 5-10
BIB	AN, DN, CR, TI, AU, IN, CS, PA, PI, AI (AIO), PRAI (PRAO), NR, SO, DT, LA, ED (BIB is the default)	D BIB
IBIB	BIB, indented with text labels	D IBIB
IND **(2)**	IPC, CC, SH, CT	D 10 20 IND
SCAN **(3)**	TI, IPC, CC, SH, CT (random display without answer numbers)	D SCAN
STD	BIB plus IPC	D STD
TRIAL (TRI, SAM) **(1)**	AN, TI, IPC, CC, SH, CT	D TRIAL TOTAL
HIT	Fields containing hit terms	D HIT
KWIC	Hit terms plus 20 words on either side (Key-Word-In-Context)	D KWIC NOH
OCC **(1)**	Number of occurrences of hit terms and fields in which they occur	D OCC

(1) Tulsa only.
(2) Custom display only.
(3) SCAN must be specified on the command line, i.e., D SCAN or DISPLAY SCAN.

SELECT, ANALYZE, and SORT Fields

The SELECT command is used to create E-numbers containing terms taken from the specified field in an answer set.

The ANALYZE command is used to create an L-number containing terms taken from the specified field in an answer set.

The SORT command is used to rearrange the search results in either alphabetic or numeric order of the specified field(s).

Field Name	Field Code	ANALYZE/ SELECT (1)	SORT
Abstract	AB	Y	N
Accession Number	AN	Y	N
Application Country	AC	Y **(3)**	Y
Application Date	AD	Y	Y
Application Information	AI	Y **(4)**	Y
Application Number	AP	Y	Y
Application and Priority Numbers	APPS	Y **(5)**	N
Application Year	AY	Y **(3)**	Y
Author/Inventor	AU	Y	Y
Citation	CIT	Y **(3,6)**	N
Classification Code	CC	Y	Y
Controlled Term	CT	Y	N
Corporate Source/Patent Assignee	CS	Y	Y
Cross Reference	CR	Y **(7)**	N
Digital Object Identifier	FTDOI	N	Y
Document Number (Petroleum Abstracts accession number)	DN	Y	Y
Document Type	DT	Y	Y
Entry Date	ED	Y	N
International Patent Classifications	IPC	Y	Y
International Standard Book Number	ISBN	N	Y
International Standard (Document) Number	ISN	Y **(8)**	N
International Standard Serial Number	ISSN	N	Y
Journal Title	JT	Y	Y
Language	LA	Y	Y
Meeting Title	MT	Y	Y
Number of Report	NR	Y	Y
Occurrence Count of Hit Terms	OCC	N	Y
Patent Country	PC	Y **(3)**	Y
	PCS	Y **(3)**	N
Patent Information	PI	Y **(9)**	Y
Patent Kind Code	PK	Y	Y
Patent Number	PN	Y	Y
	PATS	Y	N
Patent Number/Kind Code	PNK	Y	N
Priority Application Country	PRC	Y **(3)**	Y
Priority Application Date	PRD	Y	Y
Priority Application Information	PRAI	Y **(10)**	Y

SELECT, ANALYZE, and SORT Fields (cont'd)

Field Name	Field Code	ANALYZE/ SELECT (1)	SORT
Priority Application Number	PRN	Y	Y
Priority Application Year	PRY	Y **(3)**	Y
Publication Date	PD	Y	Y
Publication Year	PY	Y	Y
Source	SO	Y **(11)**	N
Subject Heading	SH	Y	N
Title	TI	Y (default)	Y
Treatment Code	TC	Y	Y
Update Date	UP	Y	N

(1) HIT may be used to restrict terms extracted to terms that match the search expression used to create the answer set, e.g., SEL HIT CT.
(2) Appends /BI to the terms created by SELECT.
(3) SELECT HIT and ANALYZE HIT are not valid with this field.
(4) Selects or analyzes Application Number with /AP appended to the terms created by SELECT.
(5) Selects or analyzes AP and PRN with /APPS appended to the terms created by SELECT.
(6) Extracts first author, publication year, and first page with a truncation symbol appended and with /RE appended to the terms created by SELECT.
(7) Appends /DN to the terms created by SELECT.
(8) Selects or analyzes ISSN or ISBN with /ISN appended to the terms created by SELECT.
(9) Selects or analyzes patent number with /PN appended to the terms created by SELECT.
(10) Selects or analyzes priority application number with /PRN appended to the terms created by SELECT.
(11) Selects or analyzes ISBN or ISSN with /SO appended to the terms created by SELECT.

Sample Records

DISPLAY ALL

```
AN      2013:10073
DN      1147192
TI      SOLUBILITY OF CARBON DIOXIDE IN AQUEOUS FLUIDS AND MINERAL SUSPENSIONS
        AT 294 K AND SUBCRITICAL PRESSURES
AU      ROSENQVIST, J; KILPATRICK, A D; YARDLEY, B W D
CS      LEEDS UNIV
SO      APPLIED GEOCHEMISTRY v.27, no.8, pp.1610-1614, Aug. 2012. (ISSN
        0883-2927); DOI: 10.1016/j.apgeochem.2012.03.008
DT      Journal
LA      English
ED      Entered STN: 3 Apr 2013
        Last updated on STN: 27 May 2013
AB      An experimental investigation has been carried on the solubility of CO2
        in water and 1 M NaCl between 0.3 and 4 MPa, in order to test the
        validity of the results given by various modelling codes. In addition to
        experiments with pure fluids, the effect of a range of likely reservoir
        minerals on CO2-water interactions, including K-feldspar, kaolinite,
        calcite, Ca-montmorillonite and Na-montmorillonite were also
        investigated. In addition to measurements of CO2 solubility, the pH of
        the CO2-saturated suspensions was also measured directly at pressures of
        up to 1 MPa. The results demonstrate that predictions of CO2 solubility
        made with PHREEQC and Geochemist's Workbench agree to within 20% with
        the experimental value, provided corrections are first made off-line for
        the fugacity coefficient of CO2, while predictions from standalone
        models are slightly more accurate. In the presence of mineral
        suspensions, PHREEQC and Geochemist's Workbench give good results for
        calcite and kaolinite but underestimate the pH of
        montmorillonite-bearing assemblages while slightly overestimating the pH
        of K-feldspar suspensions. These results are significant because they
        indicate that CO2-charged fluids reacted with clays may be less acidic
        than indicated by the models, which will impact predictions of the
        potential for dissolution of reservoir and cap rock minerals, as well as
        the potential for leaching of toxic metals. (c2012 Elsevier Ltd.)
CC      HEALTH, SAFETY & ENVIRON
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SH      *CARBON DIOXIDE
CT      *CARBON DIOXIDE INJECTION; *CHEMICAL PROCESS; *CHEMICAL REACTION;
        *COMPOUND; *GAS INJECTION; *GAS SOLUBILITY; *GAS STORAGE; *GEOLOGIC
        SEQUESTRATION; *INJECTION; *OXIDE; *PHYSICAL PROPERTY; *SEQUESTRATION;
        *SOLUBILITY; *STORING; ACIDITY/BASICITY; CALCITE; CARBONATE MINERAL;
        CHEMICAL MODEL; CHLORIDE; CLAY MINERAL; COMPOSITION; CONTROL; CRITICAL
        POINT; CRITICAL PROPERTY; DATA; DISPOSAL; EMISSION CONTROL; ENGLISH;
        EXPERIMENT; EXPERIMENTAL DATA; FELDSPAR; FLUID; GAS; GAS DISPOSAL;
        GEOCHEMICAL MODEL; GEOLOGY; GREENHOUSE GAS; HALIDE; HEALTH, SAFETY &
        ENVIRON; KAOLINITE; LABORATORY TESTING; MINERAL; MINERALOGY; MIXTURE;
        MODEL; MONTMORILLONITE; PH; PRESSURE EFFECT; SALT; SALT CONTENT;
        SILICATE MINERAL; SODIUM CHLORIDE; STORAGE FACILITY; SUSPENSION;
        TEMPERATURE EFFECT; TESTING; THERMODYNAMIC PROPERTY; UNDERGROUND STOR
        FACILITY; VAPOR PRESSURE; WASTE DISPOSAL; WATER
```

DISPLAY STD OF PATENT

```
AN      2010:39079   TULSA
DN      1059418
CR      803748
TI      [R] PROCESS AND ASSEMBLY FOR IDENTIFYING AND TRACKING ASSETS
IN      ZIEROLF, J A
PA      MARATHON OIL CO
PI      US 20100171593  A1   20100708
AI      US 2010-725254      20100316
PRAI    US 2006-377736      20060316
        US 2001-843998      20010427
SO      U.S. 2010/0,171,593A1, p. 7/8/2010, f. 3/16/2010 (Appl. 725,254), pr.
        U.S. 4/27/2001 (Appl. 843,998) and U.S. 3/16/2006 (Appl. 377,736)
        (H04Q-0005/22; G06F-0017/00). (9 pp) SRPA# 803,748
DT      Patent
LA      English
ED      Entered STN: 18 Jan 2011
        Last updated on STN: 18 Jan 2011
IPC     H04Q0005-22; G06F0017-00
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