

STN[®]

Numeric Property Searching
in STN patent files

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STN

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and Chemical Abstracts Service, U.S.A.

Agenda

- Patent files containing Numeric search feature: PCTFULL, AUPATFULL, CANPATFULL
- Numeric property data extraction
- Numeric Search examples
 - Specific property searches
 - Percent searches
 - General searches for records containing properties
- Future implementations of NPS
- Session Summary

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PCTFULL

- PCT patent applications from 1978 on
 - WO A1, WO A2
- Fulltext in **EN**, FR, DE, or ES
 - **English machine translations** for DE, ES, FR, JP, CN, KR, RU
 - other languages optional (IT, PT, FI,...)
- **English transliteration** of names
 - inventor, applicant, agent, address for CN, JP, KR, RU
 - original characters available as well
- Representative drawing (TIFF) image
- Updated ~~within 4 days of publication~~

PCTFULL database summary sheet:

<http://www.stn-international.com/pctfull.html>

New full-text patent database CANPATFULL

- Canadian full-text patent applications and patent specifications, from 1906 to date
- Produced by Lexis Nexis Univentio
- Legal status and family display options from the INPADOCDB database
- ECLA and IPC classification Thesauri
- 2 % published in French language

CANPATFULL database summary sheet:

<http://www.stn-international.com/canpatfull.html>

New full-text patent database AUPATFULL

- IP Australia full-text patent applications and patent specifications, from 1964 to date
- Produced by Lexis Nexis Univentio
- Legal status, family and citation display options from the INPADOCDB database
- ECLA and IPC classification Thesauri
- High number of Asian priorities!

AUPATFULL database summary sheet:

<http://www.stn-international.com/aupatfull.html>

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STN Numeric property search

- Numeric Property Data is extracted from the full-text and made available for searching by FIZ Karlsruhe for improved retrieval
 - Over 30 physical and chemical properties in almost 400 unit variants
 - Automatic unit conversion
- Searchable property data is available within all English-language text fields (title, abstract, description, claims)
 - Proximity searching using numeric properties and keywords
 - Flexible data input (ranges, tolerances, exact values)

Semantic enrichment: numbers and units behind the scenes

- The task: make numeric property values and ranges searchable
 - Identify numbers and units in the full-text
 - Correctly recognize ranges

Semantic enrichment: numbers and units identifying measurements

The resulting CeO_2 particle size measured by x-ray diffraction were in the range of 10 to 30 nm. Fig. 1 shows typical nano particles in a sample milled for 6 hours. In a second experiment a 1 litre attrition mill was used for milling the mixture. ... In addition it is widely accepted that the existence of a so-called 'limiting particle size' limits the practical minimum particle size that can be attained by grinding to values greater than 100nm, irrespective of the type of ball mill employed.

Semantic enrichment: numbers and units identifying measurements (cont.)

- The task: make numeric property values and ranges searchable
 - Identify numbers and units in the full-text
 - Correctly recognize ranges
 - Extract and normalize to base units

Semantic Enrichment: Numbers and Units Normalization

Values are converted to SI base units.

The resulting CeO_2 particle size measured by x-ray diffraction were in the range of 10 to 30 nm. Fig. 1 shows typical nano particles in a sample milled for 6 hours. In a second experiment a 1 litre attrition mill was used for milling the mixture. ... In addition it is widely accepted that the existence of a so-called 'limiting particle size' limits the practical minimum particle size that can be attained by grinding to values greater than 100nm, irrespective of the type of ball mill employed.

Semantic Enrichment: Numbers and Units Normalization

Values are converted to SI base units.

10 to 30 nm

1.0×10^{-8} m, 3.0×10^{-8} m

6 hours

2.16×10^4 sec.

1 litre

1.0×10^{-3} m³

greater than 100nm

1.0×10^{-7} m

Semantic enrichment: numbers and units identifying measurements

- The task: make numeric property values and ranges searchable
 - Identify numbers and units in the full-text
 - Correctly recognize ranges
 - Extract and normalize to base units
 - Make this information available for searching

STN numeric property search

- The generated numeric property data are searchable within the English-language full-text
 - Can be combined with text-based search terms
 - Using standard text-based proximity operators
 - Exact values or numeric ranges
 - In a wide variety of search unit options

PCTFULL numeric property search units

Almost 400 different units are searchable

Becquerel bit byte candela degree Hertz
Joule Kelvin kg/m^3 kilogram kg/s lumen
Lux m^2 m/s meter m^2/s m^3 mol mol/l
N/m Ohm Pa·s Pascal percent pH rpm
second Siemens Tesla Volt Watt

In over 30 different numeric fields. . . .

Numeric property search fields

Property	Field Code	Base Unit
AREA (SURFACE AREA)	/SAR	m ² (square meter)
BIT RATE	/BIR	Bit
BYTE RATE	/BYR	Byte
MOLAR CONCENTRATION (MOLARITY)	/CMOL	mol/L (mol per liter)
CONDUCTANCE (ELECTRICAL CONDUCTANCE)	/CON	S (Siemens)
DEGREE	/DEG	Degree
DENSITY (MASS DENSITY)	/DEN	kg/m ³ (kilogram per cubic meter)
VISCOSITY, DYNAMIC	/DV	PA s (pascal second)
ELECTRICAL IMPEDANCE/RESISTANCE	/RES	Ohm
ENERGY	/ENE	J (Joule)
FORCE	/FOR	N (Newton)
FREQUENCY	/FRE	Hz (Hertz)

Numeric property search fields (cont.)

Property	Field Code	Base Unit
VISCOSITY, KINEMATIC	/KV	m ² /s (square meter per second)
LUMINOUS EMITTANCE/ILLUMINANCE	/LUME	Lux
LUMINOUS FLUX (LUMINOUS POWER)	/LUMF	Lumen
LUMINOUS INTENSITY	/LUMI	Candela
MASS	/M	Kg (kilogram)
MAGNETIC FIELD STRENGTH (MAGNETIC FLUX DENSITY)	/MFS	T (Tesla)
MASS FLOW (MASS TRANSFER)	/MFL	Kg/s (kilogram per second)
MOLECULAR WEIGHT (MOLAR MASS)	/MW	g/mol (gram per mol)
PERCENT (PROPORTIONALITY)	/PER	percent
PH VALUE	/PHV	pH
POWER	/POW	W (Watt)
PRESSURE	/PRES	Pa (Pascal)

Numeric property search fields (cont.)

Property	Field Code	Base Unit
RADIOACTIVITY	/RAD	Bq (Becquerel)
SPRING CONSTANT	/SCO	N/m (Newton per meter)
SIZE	/SIZ	m (meter)
SURFACE TENSION	/ST	J/m ² (Joule per square meter)
TEMPERATURE	/TEMP	K (Kelvin)
TIME	/TIM	S (second)
VELOCITY	/VEL	m/s (meter per second)
VELOCITY, ANGULAR	/VELA	rpm (rotations per minute)
VOLUME	/VOL	m ³ (cubic meter)
VOLTAGE	/VOLT	V (Volt)

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Numeric operators

- within a range
- > greater than
- < less than
- >= greater or equal to
- <= less or equal to

Search example: Green AlGaInP LEDs

Green light has a wavelength of 500-570nm.

```
=> FIL PCTFULL AUPATFULL CANPATFULL
```

```
=> S (LIGHT EMITTING DIODE OR LED) (8a)
    (AlGaInP or AlInGaP or InGaAlP) (8a) 500-570 NM /SIZ
```

```
L1      19 (LIGHT EMITTING DIODE OR LED) (8A) (ALGAINP OR
          ALINGAP OR INGAALP) (8A) 500-570 NM
```

```
=> D KWIC 1 from each
```

Note: Proximity operators may be used just like in a typical text search.

```
L1      ANSWER 1 OF 19 PCTFULL COPYRIGHT 2012 LNU on STN
```

```
DETDEN . . .
```

```
with emission wavelengths of about 525nm (310) and 610nm (320),
respectively. For example, LEDs on the basis of AlInGaP and InGaN-LEDs
have such emission.
```

KWIC is a free-of-charge review format for text searches in PCTFULL, AUPATFULL and CANPATFULL.

Search example: Green AlGaInP LEDs cont.

AUPATFULL and CANPATFULL also contain hits for the LED search.

...

L1 ANSWER 13 OF 19 AUPATFULL COPYRIGHT 2012 LNU on STN.

DETD . . .

A second suitable type of LED is the aluminium indium gallium phosphide/gallium arsenic (AlInGaP/GaAs) type, with emission wavelengths in the range 560 to 644 nm and peak. . .

L1 ANSWER 15 OF 19 CANPATFULL COPYRIGHT 2012 LNU on STN.

DETDEN . . .

such as an LD or LED, may be used, which is made of InGaAlP for an emission wavelength of about 550 to 650 nm; GaAlAs for. . .

Search example: Nanoscale (1)

```
=> FILE PCTFULL AUPATFULL CANPATFULL
```

```
=> S SIZE (3A) SIZ<=100 NM
```

```
L1      40124 SIZE (3A) SIZ<=100 NM
```

```
=> D KWIC 1 FROM EACH
```

```
L2      ANSWER 1 OF 40124 PCTFULL COPYRIGHT 2012 LNU on STN
```

```
DETDEN . . .
```

```
explicitly recited. For example, a size range of about 1 nm to about 200  
nm. . . but also to include individual sizes such as 2 nm, 3 nm, 4  
nm,. . .
```

Here we are using the Size (/SIZ) field to search for size on the nanoscale (less than 100 nm).

For technical reasons, hit-term highlighting typically highlights only the first number in a range. Units are not highlighted.

Search example: Nanoscale (2)

L2 ANSWER 22825 OF 40124 AUPATFULL COPYRIGHT 2012 LNU on STN.

. . .

polymer comprises particles having particle sizes from about 0.01 microns to about 30 microns.

. . .

comprises particles having a particle size from about 0.01 microns to about microns.

. . .

comprisirtg particles to about 30 microns.

0.01 - 30 μm corresponds to 10 - 30,000 nm, so a part of the retrieved interval lies within the searched range.

L2 ANSWER 27288 OF 40124 CANPATFULL COPYRIGHT 2012 LNU on STN.

DET DEN . . .

heating sample and more mesopores (2 nm < pore size < 50 nm) are found in. . .

Search example: Nanoscale (cont.)

=> FILE PCTFULL

=> S SIZE (3A) SIZ<=100 NM

852175 SIZE

136116 SIZ<=100 NM

L4 20948 SIZE (3A) SIZ<=100 NM

Flexible search input options.

=> S SIZE (3A) SIZ<=1.0E-7

852175 SIZE

136116 SIZ<=1.0E-7 M

L5 20948 SIZE (3A) SIZ<=1.0E-7 M

Scientific notation is supported.

=> S SIZE (3A) SIZ<=0.0000001

852175 SIZE

136116 SIZ<=0.0000001 M

L6 20948 SIZE (3A) SIZ<=0.0000001 M

The base unit for size is meter.

Search example: Block copolymer molecular weight

=> FILE PCTFULL

Here we are searching for a Molecular Weight (/MW) of over 75 kg/mol.

=> S ?BLOCK?(A)?POLYMER?/CLM (S) MW>75000

L1 51 ((?BLOCK?(A)?POLYMER?)/CLM (S) MW>75000

=> D KWIC 1,11,23

Note: specialized text fields, e.g. the claims (/CLM), may be used just like in a typical text search.

L1 ANSWER 1 OF 51 PCTFULL COPYRIGHT 2011 LNU on STN

CLMEN

1. **Block copolymer** with a weight-middle molecular weight Mw of at least 100,000 g/mol, containing

CLMEN

3. **Block copolymer** according to requirement 1 or 2, by the fact characterized that the weight-middle molecular weight Mw the **block copolymers** within the range of 250.000 to 350,000 g/mol is appropriate.

Search example: Block copolymer molecular weight (cont.)

L1 ANSWER 11 OF 51 PCTFULL COPYRIGHT 2011 LNU on STN

CLMEN

17. The refrigerant composition of claim 15 wherein said **diblock copolymer**, said **triblock copolymer** or said gradient copolymer has an average molecular weight of from about **1 kg/mol to about 130 kg/mol.**

CLMEN

18. The refrigerant composition of claim 15 where said **diblock copolymer**, said **triblock copolymer** or said gradient copolymer has an average molecular weight of from about **1 kg/mol to about 90 kg/mol.**

L1 ANSWER 23 OF 51 PCTFULL COPYRIGHT 2011 LNU on STN

CLMEN

6. The amphiphilic **multiblock copolymer** of claim 1 wherein said hydrophobic blocks each have a molecular weight of from **0.5 kg/mol to 80 kg/mol**, and said hydrophilic block has a molecular weight of from **2 kg/mol to 160 kg/mol.**

CLMEN

7. The amphiphilic **multiblock copolymer** of claim 6 wherein said hydrophobic blocks each have a molecular weight of from **3 kg/mol to 60 kg/mol**, and said hydrophilic block has a molecular weight of from **15 kg/mol to 100 kg/mol.**

Search example: polyamides with a specific range of glass transition temperatures

```
=> S (POLYAMID? (S) ((GLASS(W)TRANSITION(W)TEMP?) OR TG))/CLM (S)
    100-200 C/TEMP
```

The search is restricted to claimed polyamides.

```
FILE 'PCTFULL,
```

```
L1          23 (POLYAMID? (S) ((GLASS (W)TRANSITION(W)TEMP?) OR TG))/CLM
              (S) 100-200 C/TEMP
```

```
FILE 'AUPATFULL,
```

```
L2          3 (POLYAMID? (S) ((GLASS (W)TRANSITION(W)TEMP?) OR TG))/CLM
              (S) 100-200 C/TEMP
```

```
FILE 'CANPATFULL,
```

```
L3          18 (POLYAMID? (S) ((GLASS (W)TRANSITION(W)TEMP?) OR TG))/CLM
              (S) 100-200 C/
```

All searched files contain hits. This search has a medium precision level.

```
TOTAL FOR ALL FILES
```

```
L4          44 (POLYAMID? (S) ((GLASS (W) TRANSITION(W) TEMP?) OR TG))/CLM
              (S) 100-200 C/TEMP
```

Search example: polyamides with a specific range of glass transition temperatures (2)

=> D L2 TI KWIC 3

L2 ANSWER 3 OF 3 AUPATFULL COE
TI GAS-BARRIER MULTILAYERED STRUCTURE

. . .
to 60% by weight of a first **copolyamide** having a **glass transition temperature**, determined by the DSC method, of **90 to 130 C** composed of (a) a dicarboxylic acid component. . . diamine, and 60 to 40% by weight of & second **polyamide** composed of a dicarboxylic acid component consisting of an aliphatic. . . of a therirusplastic resin other than the first and second **polyamides**.

Another suitable synonym for polyamide appears: copolyamide.

Searching left and right truncated

?polyamid? retrieves 3 more hits in total.

$\frac{3}{4}$ of the retrieved temperature interval lies in the searched heat range of 100 to 200 °C.

STN units system

- All values searched using accepted units are automatically converted for searching
 - E.g. 100 °C → 373.15 K
- **SET UNIT** to change default search units
 - E.g. => **SET UNIT TEMP=F DEN=LB/FT**3 PERM**
 - HELP SET UNIT for instructions
- **D UNIT <field>** to see the default and current units for an individual PCTFULL property
 - E.g. => **D UNIT TEMP**
 - D UNIT ALL to see the complete list

Valid units systems for searching

CGS	The centimeter-gram-second system
ENG	Customary U. S. Engineering units
FPS	The foot-pound-second system
MKS	The meter-kilogram-second system
SI	Systeme Internationale (International System), based on the MKS system
STN	Customary units based on the SI system

Tip: Use e.g. `SET UNITS ALL=CGS` to convert all units to the centimeter-gram-second system.

Search example: Unit conversion

```
=> S 100000 - 200000/PRES
```

```
L1      53581 100000 PA - 200000 PA /PRES
```

The base unit for pressure (/PRES) is Pascal (Pa).

```
=> S 1 - 2 BAR/PRES
```

```
L2      53581 1 - 2 BAR/PRES
```

Values in other accepted units, e.g. Bar (bar), are automatically converted.

```
=> SET UNIT PRES=BAR
```

```
SET COMMAND COMPLETED
```

```
=> S 1 - 2/PRES
```

```
L3      53581 1 BAR - 2 BAR /PRES
```

Use SET UNIT to change the default search unit, e.g. from Pascal to Bar.

Search example: Unit conversion (cont.)

=> D KWIC 3, 5, 7

The Bar search (L3) retrieves answers in several units (e.g.: psi, atm, bar).

L3 ANSWER 3 OF 53581 PCTFULL COPYRIGHT 2012 LNU on STN

DETDEN . . .

in a range of about 20 to about 100 psi. The. . .

L3 ANSWER 5 OF 53581 PCTFULL COPYRIGHT 2012 LNU on STN

DETDEN . . .

Celsius and a pressure of 1 atm. As used herein, a. . .

...

L3 ANSWER 7 OF 53581 PCTFULL COPYRIGHT 2012 LNU on STN

DETDEN . . .

photo-ionizer 108 is varied from 10 mbar to 1 atm. A. . .

Search example: Unit conversion (cont.)

=> S 1-5 INCH/SIZ

L4 251985 1-5 INCH/SIZ

Some Imperial / U.S. Customary units can also be used for searching.

=> D KWIC

L4 ANSWER 1 OF 251985 PCTFULL COPYRIGHT 2011 LNU on STN

DETDEN . . .

surrounding that value. For example, a dimension disclosed as "40 mm" is intended to mean "about 40 mm".

=> S 211-213 F/TEMP

L5 97432 211-213 F/TEMP

=> D KWIC

212 °F = 100 °C, this is a correct hit!

L5 ANSWER 1 OF 97432 PCTFULL COPYRIGHT 2011 LNU on STN

DETDEN

2% SDS, 0.1% bromophenol blue, and 25% glycerol) and heated at 100 °C for 5 min prior to loading onto the 3 - 18% gradient SDS-PAGE gel. The samples underwent electrophoresis at. . .

Search example: Open ranges

=> S VOLT>0.5

L1 116530 VOLT>0.5 V

An open range (L1).

=> D KWIC 1 2

L1 ANSWER 1 OF 116530 PCTFULL COPYRIGHT 2011 LNU on STN

DETDEN . . .

the battery may be at 3.7 volts and be able to. . .

DETDEN . . .

that may receive power (e.g., +5 volts) from a digital device. . .

DETDEN . . .

example, the battery may provide 3.7 volts and the buck/boost power. . .
step up the voltage to +5 volts.

L1 ANSWER 2 OF 116530 PCTFULL COPYRIGHT

Open ranges are truly open – and may retrieve irrelevant results.

DETDEN . . .

voltage is typically from about 2,000 to 80,000 volts. The charge. . .

DETDEN . . .

Biax tube. A voltage of 9.2 kV was employed. PTFE was. . .

Search example: Open ranges (cont.)

```
=> S IRON (2A) PARTICLE (2A) SIZ>100 NM
```

```
139768 IRON
```

```
. . . .
```

Open ranges will also often exceed truncation limits.

```
TERM 'SIZ>100 NM' EXCEEDED TRUNCATION LIMITS - SEARCH ENDED
```

```
=> S IRON (2A) PARTICLE (2A) 100 - 1000 NM/SIZ
```

```
L2 22 IRON (2A) PARTICLE (2A) 100 - 1000 NM/SIZ
```

Restricting the range allows the search to complete.

```
=> D KWIC
```

```
L2 ANSWER 1 OF 22 PCTFULL COPYRIGHT 2011 LNU on STN
```

```
DETDEN . . .
```

This range overlaps with the range searched.

a pollutant by means of pumping the colloid into the water and/or soil.

More preferred, the particle size of the iron oxide particles is

100 to 400 nm. It was found that these iron oxide particles are especially effective in the present invention.

Conclusion: it's typically a good idea to search a closed range, even if you have an open range in mind.

Search example: Exact values

```
=> S 100 C/TEMP(3A)(MELTING(W)POINT OR MP)
L1      1455 100 C/TEMP(3A)(MELTING(W)POINT OR MP)
```

An exact value (L1).

```
=> S 99-101 C/TEMP(3A)(MELTING(W)POINT OR MP)
L2      1570 99-101 C/TEMP(3A)(MELTING(W)POINT OR MP)
```

A closed range (L2).

```
=> S L2 NOT L1
L3      115 L2 NOT L1
```

Note: Using exact values (L1) may miss potentially relevant documents (L3).

```
=> D KWIC 5
```

```
L3      ANSWER 5 OF 115 PCTFULL COPYRIGHT 2011 LNU on STN
```

```
DETDEN . . .
```

for a period of 45 min. Solids was filtered, washed with dichloromethane and the filtrate evaporated. Yield: 19.2 g (70%). **MP: 99.4 °C.** IR . . .

Conclusion: it's typically a good idea to search a closed range, even if you have an exact value in mind.

Search example: Tolerances

```
=> S 100/TEMP
L1          5658 100 K /TEMP
```

An exact value using the default unit (L1).

```
=> S 100+-1/TEMP
L2          5780 100+-1 K /TEMP
```

Applying a *tolerance* is possible, e.g. ± 1 .

```
=> S L2 NOT L1
L3          122 L2 NOT L1
```

Note: Using exact values (L1) may miss relevant documents (L3).

```
=> D KWIC 2, 9
```

```
L3          ANSWER 2 OF 122 PCTFULL COPYRIGHT 2011 LNU on STN
. . .171 -173 °C.. . .
```

```
L3          ANSWER 9 OF 122 PCTFULL COPYR
. . .ΔT= 99.78K
```

Use **SET TOLERANCE** to automatically turn exact values into ranges. Use
=> SET TOL TEMP=1 PERM
to save this setting for your Login ID.

```
=> SET TOLERANCE TEMP=1
SET COMMAND COMPLETED
```

```
=> S 100/TEMP
L4          5780 100 +-1 K /TEMP
```

Note: Both methods (L2 and L4) yield the same results.

Search example: Tolerances (cont.)

```
=> SET TOLERANCE TEMP=1%  
SET COMMAND COMPLETED
```

Percent-based tolerances
can also be used (L5, L6).

```
=> S 100/TEMP  
L5      5780 100 +-1% K /TEMP
```

1% of 100 = 1, so L5 = 99 - 101 K.

```
=> S 200/TEMP  
L6      6831 200 +-1% K /TEMP
```

1% of 200 = 2, so L6 = 198 - 202 K.

```
=> D KWIC 1-
```

Note: -75 °C = 198.15 K so these
documents would not have been
retrieved with an absolute tolerance of 1.

```
L6      ANSWER 1 OF 6831 PCTFULL COPY
```

```
DETDEN . . .
```

```
. . . maintaining the internal temperature below -75 °C. The ice . . .
```

```
L6      ANSWER 2 OF 6831 PCTFULL COPYRIGHT 2011 LNU on STN
```

```
DETDEN . . .
```

```
mL of anhydrous tetrahydrofuran (THF) and cooled to -75 °C. A  
solution of 3-bromosalicyl alcohol isopropylidene acetal. . .
```


Search example: Alloy percent composition

=> FIL PCTFULL

=> S ALLOY (S) BISMUTH (1A) 40-60/PER (S) LEAD (1A) PER>20 (S)
TIN (S) CADMIUM

L1 17 ALLOY (S) BISMUTH (1A) 40 PERCENT - 60 PERCENT /PER (S) LEAD
(1A) PER>20 PERCENT (S) TIN (S) CADMIUM

=> D KWIC 1,2

Use Percent (/PER) to specify the percent of metals in an alloy composition.

L1 ANSWER 1 OF 17 PCTFULL COPYRIGHT 2011 LNU ON STN

DETDEN . . .

temperature curing processes is used to cover the fasteners. One example of such an alloy is a eutectic alloy, made of about 50% bismuth, about 26.7% lead, about 13.3% tin, and about 10% cadmium by weight, and with a melting point of approximately 70 °C (158 °F). During the curing. . .

L1 ANSWER 2 OF 17 PCTFULL COPYRIGHT 2011 LNU ON STN

DETDEN . . .

lowered clearly, if a such alloy contains approx. 14% to 60% bismuth, 20% to 30% lead or up to 45% tin or also antimony, cadmium, Indium, zinc, tellurium, mercury or thallium. In particular with initially the

Search example: Monomer weight percent

=> FIL CANPATFULL

=> S COPOLYM? (S) (ETHYLENE (1A) 30-50/PER) (S) (PROPYLENE (1A) 50-70/PER)

L1 203 COPOLYM? (S) (ETHYLENE (1A) 30 PERCENT - 50 PERCENT /PER)

Use Percent (/PER) to specify the weight % of monomers in a copolymer.

=> D KWIC 2

L5 ANSWER 2 OF 203 CANPATFULL COPYRIGHT 2012 LNU on STN.

DETDEN . . .

A 1000 is a random copolymer consisting of 50% ethylene oxide and 50% propylene oxide. Its molecular mass (number. . . with a thermosensitive EOPO block copolymer (e.g. Pluronic[®] L81) (data not. . . and Ucon polymers are random copolymers of EO and PO. Plurronics. . .

Search example: Sequence percent identity

```
=> S (FIBROBLAST GROWTH FACTOR OR FGF?)/CLM (S)
(SIMILAR? OR IDENTI? OR HOMOLOG?)/CLM(S)PER>=80
```

```
L1          39 (FIBROBLAST GROWTH FACTOR OR FGF?)/CLM (S) (SIMILAR? OR
IDENTI? OR HOMOLOG?)/CLM(S)PER>=80 PERCENT
```

```
=> D KWIC 1,4
```

```
L1      ANSWER 1 OF 12237 1
```

Use Percent (/PER) to specify the percent identity of claimed sequences to a known protein.

CLMEN

10. A chimeric **FGF19** polypeptide, wherein the sequence of the polypeptide comprises: a first polypeptide sequence having at least **85%** sequence **identity** to SEQ ID NO: 1, wherein a portion of the first polypeptide sequence is substituted with a portion of a second polypeptide sequence, the second polypeptide sequence having at least **85%** sequence **identity** to SEQ ID NO:2,

```
L1      ANSWER 4 OF 39 PCTFULL COPYRIGHT 2011 LNU on STN
```

CLMEN

1. A mutant **fibroblast growth factor (EGF)** protein having a polypeptide sequence that is at least **90%** **identical** to the polypeptide sequence of wild-type human **FGF-I** protein (SEQ ID NO. 1)

Search example: Physical properties (PHP)

=> S PER/PHP (5A) CAMPHOR

L1 237 PER/PHP (5A) CAMPHOR

=> D KWIC 1-10

L1 ANSWER 1 OF 237 PCTFULL COL

DETDEN . . .

(5% or less), 4 methylbenzylidene **camphor** (6% or less),
terephthalylidene dicamphor sulfonic. . .

L1 ANSWER 9 OF 237 PCTFULL COPYRIGHT 2011 LNU on STN

DETDEN . . .

4 gram preparation contains about **1 % camphor** by weight {eg.,
about ,04g). . .

CLMEN. . .

0.10% by weigh, to about **1.0% by weight of camphor;** b. from
about 0.06% by weight to about 0.60%. . .

CLMEN. . .

of claim 8, comprising about **0.14% by weight of camphor,** about
0.08% by weight of menthol, and. . .

Searching for a property in the Physical Properties (/PHP) field, finds all property values and highlights them, e.g. all percentages **PER/PHP**.

Search example: Physical properties (cont.)

```
=> S MW/PHP (5A) (?BLOCK(W)?POLYM? OR ?BLOCK?(T)?POLYM?)  
L2          163 MW/PHP (5A) (?BLOCK? (T) ?POLYM?)
```

```
=> D KWIC 1-5
```

E.g., the availability of polymer molecular weight (MW) can be researched in the /PHP field.

```
DETDEN . . .
```

After quenching, the resultant iPF-block-PEP diblock copolymer had an Mn = 122 kg/mol and MJMn = 1.20. . .

```
DETDEN . . .
```

molecular weight of the Polyoxyalkylene Blockcopolymers 200000 g/mol, prefers 100000 g/mol and particularly prefers 50000. . .

```
=> S SIZ/PHP (S) (LIPOSOM? OR (LIPID? (W) VESICL?))  
L3          9531 SIZ/PHP (S) (LIPOSOM? OR (LIPID? (W) VESICL?))
```

```
=> D KWIC 1-
```

E.g., the availability of liposome size (SIZ) can be researched in the /PHP field.

```
DETDEN . . .
```

by entrapping the drug in liposomes or microemulsions which are compatible. . . size in the range of 0.01 to 10 micrometers.

Typical NPS searches

Presence of **properties**.

```
=> S PER/PHP (5A) CAMPHOR
```

Searching for **percent values**.

```
=> S ALLOY (S) BISMUTH (1A) 40-60/PER (S) LEAD (1A) PER>20  
(S) TIN (S) CADMIUM
```

Searching for **specific properties**.

```
=> S (LIGHT EMITTING DIODE OR LED) (8a)  
(AlGaInP or AlInGaP or InGaAlP) (8a) 500-570 NM /SIZ
```

Review of NPS search options

=> S 50/VOL
L1 454 50 M**3 /VOL

Searching with **default units**.

=> S 50-60/VOL
L1 599 50 M**3 - 60 M**3 /VOL

Searching with **closed ranges**.

=> S 10-30 ML/VOL
L1 114646 10-30 ML/VOL

Searching with **other units**.

=> S SIZ < 5 MM
L1 463893 SIZ < 5 MM

Searching with **open ranges**.

=> S 5 MM +-1/SIZ
L1 160136 5 MM +-1/SIZ

Searching with **tolerances**.

=> S 5 MM +-5%/SIZ
L1 113784 5 MM +- 5%/SIZ

Searching with **tolerances in %**

Agenda

- Patent files containing Numeric search feature: PCTFULL, AUPATFULL, CANPATFULL
- Numeric property data extraction
- Numeric Search examples
 - Specific property searches
 - Percent searches
 - General searches for records containing properties
- **Future implementations of NPS**
- Session Summary

Future Implementations of NPS

- Current NPS added to
 - Chinese fulltext file **CNFULL**
 - Bibliographic file **MOBILITY**
- Improved version of NPS added to
 - Later new or reloaded patent fulltext files
 - Later reloaded bibliographic files
- **DWPI** enhanced with improved NPS soon

DWPI - NPS implementation

- 21 new indexed properties, 40 new additional units
- More than 1400 new indexed unit variants
- Indexing of most frequent textual expressions for numbers
 - one - twenty: 1, 2, 3, ..., 20
 - twenty - one hundred: 20, 30, 40, ..., 100
 - hundred, thousand, million, billion
- Improved handling of ranges
 - Enhanced indexing of closed ranges
 - Full indexing of open ranges
 - Field qualifier to exclude open ranges: **.EX**

Agenda

- Patent files containing Numeric search feature: PCTFULL, AUPATFULL, CANPATFULL
- Numeric property data extraction
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Numeric Property Search - summary

- Numeric property search available in **PCTFULL**, **AUPATFULL** and **CANPATFULL**
- Search for **specific units**, **percentages** or the **presence of NPS** in database records
- **Combine keywords** with numeric expressions and thoroughly choose Proximity Operators
- **Restrict searches** to specific fields, e.g. claims
- **DWPI enhanced** with **improved NPS** soon
→ upcoming e-seminars

Resources

- Upcoming e-Seminars on the **NPS** in **DWPI** and **CNFULL**
- General information about physical properties given in base or derived SI units
<http://www.bipm.org/en/si>
- General Information on the STN Units System
<http://www.cas.org/support/stngen/doc/stnunits/>

Resources (cont.)

- PCTFULL database summary sheet
<http://www.stn-international.com/pctfull.html>
- AUPATFULL database summary sheet
<http://www.stn-international.com/aupatfull.html>
- CANPATFULL database summary sheet
<http://www.stn-international.com/canpatfull.html>

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