Numeric property search (NPS) on STN®

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Agenda

- Bibliographic databases with NPS
- Numeric data identification and normalization
- Numeric property searching
  - Specific property searches
  - Percent searches
  - General searches for records containing properties

A list of STN databases with the NPS feature:
http://www.stn-international.com/nps_databases.html

Bibliographic databases with NPS

1MOBILITY	Global Mobility Bibliographic database
2MOBILITY	Global Mobility Standards database
AEROSPACE	Aerospace and High Technology database
AGRICOLA	Agriculture Online Access database
COMPENDEX	Computerized Engineering Index and El Engineering Meetings database
FSTA	Food Science Technology Abstracts
METADEX	Metals Abstracts/Alloy Index
PQSCITECH	ProQuest Science and Technology

Numeric data identification and normalization

- Numbers and their units are identified within the text and made fully numerically searchable
  - 1,800 chemical and physical property unit variants are identified, normalized and indexed
  - Both exact values and ranges
- Identified original data are normalized to base units and indexed for searching
  - 55 numeric property search fields are available

Numeric property search fields and base units:
http://www.stn-international.com/pqscitech_nps.html

Example: Numeric data identification and normalization to base units

Relevant 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.

Irrelevant numbers are ignored.

Example: Numeric data identification and normalization to base units

Relevant values are converted to SI base units.

10 to 30 nm	1 $x10^{-8}$ m, 3 $x10^{-8}$ m
6 hours	2.16 $x10^{4}$ s
1 litre	1 $x10^{-3}$ m^3
greater than 100nm	1 $x10^{-7}$ m

Numeric property data can be searched within all English-language text fields

- Numeric search terms can be combined with text-based search terms of interest
  - Using standard text-based proximity operators
  - Specifying text fields of interest, e.g. abstract (/AB)
- Flexible data input options are available
  - 55 chemical and physical numeric fields
  - Ranges, exact values and tolerances
  - A wide variety of STN search units

Search unit → Base unit → Original unit

Searching using the STN units system

- All values searched using accepted units are automatically converted for searching
  - E.g. 100 ºC → 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 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.

Numeric operators

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

Proximity Operators

(#W) # words apart – in query order

(#A) # words apart – in either order

Tip: Providing textual context for numeric search terms using proximity operators greatly improves the relevance of search hits.

Search example: Particle size

```
=> FILE COMPENDEX

=> S PARTICLE (3A) SIZE (3A) 1-100 NM/LEN
L1          9522 PARTICLE (3A) SIZE (3A) 1-100 NM/LEN

=> D KWIC

L1      ANSWER 1 OF 9522 COMPENDEX COPYRIGHT 2013 EEI on STN.
AB      Gold clusters (average particle size is 1.5 nm) and nanoparticles
        (average particle size is 3.5 nm) with spherical morphology were
        fabricated by solution plasma sputtering in solution medium. This
        process was carried out in an.  .  .
```

Here we are using the length (/LEN) field* to search for nanoscale particle size (1-100 nm).

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

KWIC is a free-of-charge review format for text searches conducted in COMPENDEX and many other databases.

* Size (/SIZ) may also be used as a synonym for Length (/LEN).

Search example: Particle size (cont.)

```
=> FILE COMPENDEX
```

Flexible search input options.

```
=> S PARTICLE (3A) SIZE (3A) LEN<=100 NM
L1          9646 PARTICLE (3A) SIZE (3A) LEN<=100 NM
```

The base unit for size is meter.

```
=> S PARTICLE (3A) SIZE (3A) LEN<=0.0000001
L2          9646 PARTICLE (3A) SIZE (3A) LEN<=0.0000001 M
```

Scientific notation is supported.

```
=> S PARTICLE (3A) SIZE (3A) LEN<=1.0E-7
L3          9646 PARTICLE (3A) SIZE (3A) LEN<=1.0E-7 M
```

Search example: Red light LEDs

```
=> FILE COMPENDEX

=> S (LIGHT EMITTING DIODE OR LED) (5A) 620-740 NM /LEN
L1          346 (LIGHT EMITTING DIODE OR LED) (5A) 620-740 NM /LEN

=> D KWIC

L1      ANSWER 1 OF 346 COMPENDEX COPYRIGHT 2013 EEI on STN.
AB      .  .  .  a few exposures of 5 to 30 min. To stimulate the
        photodynamic and photothermal activities of the nanocomposites, we
        used LEDs (405 and 625 nm) and a NIR laser (808 nm), respectively. We
        observed enhanced inactivation of S. aureus 209 P by nanocomposites
        in.  .  .
```

The Length field (/LEN) is used to search for red light wavelengths (620-740 nm).

The same numeric field may be searched in various contexts, e.g. wavelength or size of particles.

Search example: Block copolymer molecular weight

```
=> FILE PQSCITECH

=> S ?BLOCK?(A)?POLYMER? (3A) MM>75000
L1          17 ?BLOCK?(3A)?POLYMER? (S) MM>75000 G/MOL

=> D KWIC

L1      ANSWER 1 OF 17 PQSCITECH COPYRIGHT 2013 ProQuest LCC on STN.
AB      . . . block of a conjugated diene located on at least one of
        the plurality of arms, and optionally one or more block copolymers
        comprising at least one block of monovinylaromatic hydrocarbon and at
        least one block of a conjugated diene, the block copolymer may be
        selected from linear copolymers, linear triblock copolymers,
        multiarm coupled block copolymers, and mixtures thereof. The
        molecular weight of the polymeric composition is in the range from
        about 100 kg/mol to about 400 kg/mol.
```

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

Note: The default search unit molar mass is g/mol.

* /MM = Molar Mass.

Search example: Molar concentration

```
=> FILE PQSCITECH

=> S (SODIUM HYDROXIDE OR NAOH) (3A) 1-5/CMOL
L1        1485 (SODIUM HYDROXIDE OR NAOH) (3A) 1 MOL/L - 5 MOL/L /CMOL

=> D KWIC

L1     ANSWER 1 OF 1485 PQSCITECH COPYRIGHT 2013 ProQuest LCC on STN.
AB     .  .  .  defects representing the intraparticular pores account for a
       volume of 0.138 cm super(3)/g in Al-MCM-41, prepared under the
       condition of 1.0 mol/L of NaOH and 1 h of stirring time. A tentative
       proposed mechanism for interpreting the formation of void defects was
       presented. Aggregated.  .  .
```

Here we are searching for a molar concentration (/CMOL) of 1-5 mol/L.

Using suitable proximity between numeric and text terms helps find highly relevant hits.

Search example: Effective dose

```
=> FILE PQSCITECH

=> S ED50 (5A) 1-100/DOS
L1          51 ED50 (5A) 1 MG/KG - 100 M

=> D KWIC 1-2

L1      ANSWER 1 OF 51 PQSCITECH COPYRIGHT 2013 ProQuest LCC on STN.
AB      .  .  .  clonic seizure screen at 6 Hz. Compound J6,
        4-Chloro-N-(2-isopropyl-5-methylcyclohexylidene) benzohydrazide was
        found to be the most active compound with MES ED50 of 16.1 mg/kg and
        protective index (pI) of greater than 20, indicating that (?) 3-
        menthone aryl acid hydrazone possesses better and safer.  .  .

L1      ANSWER 2 OF 51 PQSCITECH COPYRIGHT 2013 ProQuest LCC on STN.
AB      .  .  .  of brain Ins(1)P 6 h after administration was 4-6 mmol/kg.
        The pilocarpine stimulation of lithium-induced brain Ins(1)P
        accumulation had an ED50 of 22 mg/kg, with maximal accumulation
        occurring 120 min after pilocarpine administration. Atropine reduced
        Ins(1)P levels, in both the absence and t
```

Here we are looking for an effective dose (ED_{50}) of 1-100 mg/kg using the dosage (/DOS) field.

Note: The default search unit for dosage is mg/Kg.

Search example: Multifile NPS search

```
=> FILE COMPENDEX PQSCITECH

=> S (NANOFILT? OR NANO(3A)FILT?)(10A)15-30 NM/LEN
L1             4 FILE COMPENDEX
L2            17 FILE PQSCITECH

TOTAL FOR ALL FILES
L3            21 (NANOFILT? OR NANO(3A) FILT?)(10A) 15-30 NM/LEN

=> DUP REM L3
PROCESSING COMPLETED FOR L3
L4             18 DUP REM L3 (3 DUPLICATES REMOVED)
                  ANSWERS '1-4' FROM FILE COMPENDEX
                  ANSWERS '5-18' FROM FILE PQSCITECH

=> FOCUS L4
PROCESSING COMPLETED FOR L4
L5             18 FOCUS L4 1-
```

NPS may also be used in a multifile environment.

This example features:
SET MSTEPS ON
SET DUPORDER FILE

Standard STN multifile tools, e.g. relevance-rank with FOCUS, may be used.

Search example: Multifile NPS search (cont.)

```
=> D KWIC 1-2

L5      ANSWER 1 OF 18 PQSCITECH COPYRIGHT 2013 ProQuest LCC on STN.
AB      .  .  .  (B19V) and torque teno virus (TTV). Virus removal was
        investigated with down-scale experiments performed with sequential
        steps of 35-nm and 15-nm nanofiltrations of products spiked with
        virus DNA-positive sera. Viral loads were determined by real-time
        PCRs. The 15-nm nanofiltration removed more than 4.0 B19V log from
        all the products, TTV was reduced of more than 3.0 log from albumin
        solution and FIX by 35-nm and 15-nm nanofiltrations, respectively,
        being viral DNA undetectable after these treatments. Traces of TTV
        were still found in PTC after the 15-nm nanofiltration. In
        conclusion, nanofiltration can be efficacious in removing small naked
        viruses but, since viruses with similar features can differently
        respond to the treatment,.  .  .

L5      ANSWER 2 OF 18 PQSCITECH COPYRIGHT 2013 ProQuest LCC on STN.
AB      .  .  .  objective was to develop a manufacturing process for factor
        VIII (FVIII) including two complementary steps of viral
        inactivation/elimination. Methods A 35-15 nm nanofiltration step was
        added to a former FVIII manufacturing process that included
        solvent/detergent (S/D) treatment to generate a new FVIII
        concentrate.  .  .  of FVIII, as well as virus/transmissible
        spongiform encephalopathy reduction factors were assessed. Results
        Using an innovative approach, FVIII was successfully nanofiltered at
        35-15 nm, while the biological properties of the active substance
        were unmodified. FVIII coagulant and antigen content for Factane
        registered and.  .  .
```

Search example: Unit conversion

```
=> FILE COMPENDEX

=> S 100000 - 200000/PRES
L1          23490 100000 PA -  200000 PA /PRES

=> S 1 - 2 BAR/PRES
L2          23490 1 - 2 BAR/PRES

=> SET UNIT PRES=BAR
SET COMMAND COMPLETED

=> S 1 - 2/PRES
L3          23490 1 BAR -  2 BAR /PRES
```

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

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

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

Search example: Unit conversion (cont.)

```
=> D KWIC 1-50

L3      ANSWER … OF 23490 COMPE
AB      .  .  .  dosage was 600 g/t, pulp density was 20 per cent,
        superficial gas velocity was 1.4 cm/s, and circulating pressure was
        0.20 MPa. The results indicate that the FCSMC technique is effective
        in removing the unburned carbon from the fly ash, which.  .  .

L3      ANSWER … OF 23490 COMPENDEX COPYRIGHT 2013 EEI on STN.
AB      The solubility and absorption rate of CO2 in diethanolamine (DEA)
        promoted potassium carbonate (K2CO3) aqueous solution were measured
        at 1 atm, with temperatures ranging from 328.15 to 343.15K. The
        influence of the mass fractions of DEA (w)on the solubility, CO2.  .

L3      ANSWER … OF 23490 COMPENDEX COPYRIGHT 2013 EEI on STN.
AB      .  .  .  different pressures were conducted and compared with
        working in atmosphere. The experimental results show that the device
        working in atmosphere (760 Torr) had a maximum output power of
        200.28 .mu.W with a 12.658 VP-P output voltage at.  .  .
```

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

Search example: Unit conversion (cont.)

Many Imperial and U.S. Customary Units can also be used for searching.

```
=> FILE COMPENDEX

=> S ALUMINIUM SHEET (5A) THICK? (3A) 0.05-0.5 INCH/LEN
L1          36 ALUMINIUM SHEET (5A) THICK? (3A) 0.05-0.5 INCH/LEN
```

Here we are looking for aluminium sheet with a thickness of 1/20th to ½ an inch (L1).

```
=> D KWIC 1-2

L1      ANSWER 1 OF 36 COMPENDEX COPYRIGHT 2013 EEI on STN.
AB      Friction Stir welding has been attempted to study the feasibility of
        FSW between aluminium sheet (AA 6061) of 2 mm thick and Zinc coated
        steel (HIF-GA) sheet of 1 mm thick in lap joint configuration. The
        interfacial area of dissimilar welds.  .  .

L1      ANSWER 2 OF 36 COMPENDEX COPYRIGHT 2013 EEI on STN.
AB      Friction stir welding was used to weld 2.75 mm thick 2519A
        aluminum sheets. The sheets were welded in conventional condition
        (in air) and flowing water condition. The influence of cooling
        conditions on the.  .  .
```

Search example: Open ranges

```
=> FILE COMPENDEX

=> S VOLT>0.5
L1      120255 VOLT>0.5 V

=> D KWIC 1-2

L1      ANSWER 1 OF 120255 COMPENDEX COPYRIGHT 2013 EEI on STN.
AB      .  .  .  focal point was measured, and the measurement revealed that
        the device can produce a peak pressure of 2.32ƒ0.81 MPa at 2 kV
        discharge voltage, 3.69ƒ1.06 MPa at 3 kV, 5.67ƒ2.44 MPa at 4 kV, and
        7.27ƒ2.33 MPa at 5 kV. .COPYRGT. 2013 by JSME.

L1      ANSWER 2 OF 120255 COMPENDEX COPYRIGHT 2013 EEI on STN.
AB      .  .  .  cd/A, 15 420 cd/m2, respectively. The commission
        international eclairage (CIE) color coordinates of the device vary
        from (0.34, 0.44) at 4 V to (0.27, 0.33) at 12 V. In order to further
        improve the performance of WOLED, the BPhen is used as exciton block-
        layer to the WOLED,.  .  .
```

An open range voltage (/VOLT) search (L1).

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

Search example: Open ranges (cont.)

```
=> FILE COMPENDEX

=> S IRON (2A) PARTICLE (2A) LEN>100 NM
      . . . .
TRUNCATION LIMITS EXCEEDED - SEARCH ENDED

=> S IRON (2A) PARTICLE (2A) 100 - 1000 NM/LEN
L2          24 IRON (2A) PARTICLE (2A) 100 - 1000 NM/LEN

=> D KWIC

L2      ANSWER 1 OF 24 COMPENDEX COPYRIGHT 2013 EEI on STN.
AB      .   .   .  powder's combustion were studied in different heating rates
        that were 10K/min, 20 K/min, 30 K/min and 40 K/min, and the particle
        sizes of iron were 100nm and 20.mu.m. The iron's kinetic parameters
        of combustion reaction were calculated by Coats-Redfern integral,
        differential an
```

Open range searches may also exceed system limits.

Restricting the range allows the search to complete.

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

```
=> FILE PQSCITECH

=> S 100 C/TEMP(5A)(MELTING(W)POINT OR MP)
L1          312 100 C/TEMP(5A)(MELTING(W)POINT OR MP)

=> S 99-101 C/TEMP(5A)(MELTING(W)POINT OR MP)
L2          313 99-101 C/TEMP(5A)(MELTING(W)POINT OR MP)

=> S L2 NOT L1
L3            1 L2 NOT L1

=> D KWIC

L3      ANSWER 1 OF 1 PQSCITECH COPYRIGHT 2013 ProQuest LCC on STN.
AB      .  .  .  decomposition temperatures of all products were below 250
        degree C. The degradation products of both PBS/CHDM and PBS/DGA
        showed two melting points at about 85 and 99 degree C. Mass
        spectrometry (MS) was employed to obtain the molecular weight of
        oligomers extracted from the products, which proved . . .
```

An exact value (L1).

A closed range (L2).

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

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

Search example: Tolerances

```
=> FILE PQSCITECH

=> S 100+-1 C/TEMP
L1        62716 100+-1 C/TEMP

=> SET TOLERANCE TEMP=1
SET COMMAND COMPLETED

=> S 100/TEMP
L2        62716 100+-1 C/TEMP

=> SET TOLERANCE TEMP=1%
SET COMMAND COMPLETED

=> S 100 C/TEMP
L3        62716 100 C +-1% /TEMP

=> S 200 C/TEMP
L4        63395 200 C +-1% /TEMP
```

A *tolerance* of ± 1 (L1).

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

Percent-based tolerances can also be used (L3, L4).

1% of 100 = 1, so L3 = 99 - 101 °C.

1% of 200 = 2, so L4 = 198 - 202 °C.

Search example: Percent alloy composition

Here we are searching for percent (/PER) of metals in an alloy composition.

```
=> FILE PQSCITECH

=> S ALLOY AND TIN (1A) PER>90 AND SILVER (1A) 1-10/PER
L1          10 ALLOY AND TIN (1A) PER>90 PERCENT AND SILVER (1A)
               1 PERCENT - 10 PERCENT /PER

=> D KWIC

L1     ANSWER 1 OF 10 PQSCITECH COPYRIGHT 2013 ProQuest LCC on STN.
       .  .  .  a brightening promoter that decreases the cathodic
       polarization of baths and densifies the electrodeposits. The
       bright, compact, and smooth Sn-Ag-Cu alloy electrodeposits contain
       88-95wt% tin, 5-10wt% silver and 0.5-2wt% copper. Organic compounds
       used in the baths neither adsorb on the electrodeposits surfaces nor
       are included in the.  .  .
```

Search example: molybdenum ppm content

```
=> FILE PQSCITECH AGRICOLA FSTA COMPENDEX 1MOBILITY

=> S MOLYBDENUM (5A) 200E-6 - 300E-6/PER (3A) (PPM OR PARTS PER
     MILLION)
L1           23 FILE PQSCITECH
L2            1 FILE AGRICOLA
L3            0 FILE FSTA
L4            9 FILE COMPENDEX
L5            0 FILE 1MOBILITY

TOTAL FOR ALL FILES
L6           33 MOLYBDENUM (5A) 200E-6 - 300E-6/PER(3A)(PPM OR PARTS PER
                MILLION)

=> DUP REM L6
PROCESSING COMPLETED FOR L6
L7           32 DUP REM L6 (1 DUPLICATE REMOVED)
                ANSWERS '1-23' FROM FILE PQSCITECH
                ANSWER '24' FROM FILE AGRICOLA
                ANSWERS '25-32' FROM FILE COMPENDEX

=> FOCUS L7
PROCESSING COMPLETED FOR L7
L8           32 FOCUS L7 1-
```

Scientific notation for 200-300 ppm.

To avoid unintended hits, “ppm” is searched adjacent to the numeric property.

Note: ppm is indexed in the Percent (/PER) property field.

Search example: molybdenum ppm content

```
=> D KWIC FROM EACH

L8      ANSWER 1 OF 32 PQSCITECH COPYRIGHT 2013 ProQuest LCC on STN.
AB      .  .  .  in a large dairy unit on the outskirts of Mexico City. The
        animals had received a mineral ration containing 4400 ppm copper and
        258 ppm molybdenum which resulted in a higher than normal Cu:Mo
        ratio (17:1 compared to between 6:1 and 10:1). Six calves between
        18.  .  .

L8      ANSWER 8 OF 32 AGRICOLA COPYRIGHT 2013 NLA on STN.
AB      Summary: The effect of molybdenum - induced copper deficiency on
        polymorphonuclear leukocytes function was examined. Five female
        cattle were given molybdenum (30 ppm) and sulphate (225 ppm) to
        induce experimental secondary copper deficiency. Oxidant production
        by bovine neutrophils was measured by
        stimulation with phorbol.  .  .

L8      ANSWER 2 OF 32 COMPENDEX COPYRIGHT 2013 EEI on STN.
AB      .  .  .  Background for molybdenum is less than 5 ppm, and the
        resulting anomalies show a steep gradient from 50 to over 250 ppm.
        The 100 ppm molybdenum threshold delineates an amomaly of about 2 km
        by 400 m, oriented north-northeast. The integration of geochemistry
        and geology permitted.  .  .
```

Note: its not always possible to avoid irrelevant hits.

Search example: Reaction time

Here we are using the time (/TIM) field to search for a chemical reaction time of less than 2 hours.

```
=> FILE WPIX

=> S REACT? TIME (5A) TIM<2 HOURS
L1          3801 REACT? TIME (5A) TIM<2 HOURS
```

The numeric property search (NPS) feature is also available in *Derwent World Patents Index* (*DWPI*).

```
=> D KWIC 1,15

L1   ANSWER 1 OF 3801  WPIX COPYRIGHT 2012       THOMSON REUTERS on STN
TECH.  .  .
     in the acidic solution. Reaction temperature of vanadium pentoxide and
     reducing agent in the acidic solution is 45-100 degrees C. Reacting
     time is 0.5-64 hours. The pH value of the acidic solution is 0-6.
     Pressure of reaction in high pressure kettle is 0.1-50 MPa.

L1   ANSWER 15 OF 3801  WPIX COPYRIGHT 2012       THOMSON REUTERS on STN
ABEX.  .  . Teflon vacuum pump was turned on and the vacuum was immediately
     applied to the system. After a total reaction time of 60 minutes the
     heat was turned off and the flask was backfilled with nitrogen. The
     reaction mixture was then charged with.  .  .
```

Search example: Reaction time (cont.)

```
=> SET SFIELDS BI CLM
SET COMMAND COMPLETED

=> S REACT? TIME (5A) TIM<2 HOURS
L2          6964 REACT? TIME/BI,CLM (5A) TIM<2 HOURS

=> S L2 NOT L1
L3          3163 L2 NOT L1

=> D KWIC

L3   ANSWER 1 OF 3163  WPIX COPYRIGHT 2012        THOMSON REUTERS on STN

Member.  .  .
      reagent is solid sodium methoxide or potassium methoxide or their
      mixture, the reaction temperature is 70 140 degrees centigrade, the
      reaction time is 1 to 5 hours, the pressure is -0.085 to -0. MPa,
      removing reaction generated in the methanol.
      [CLAIM 5] Preparation method butyl.  .  .
```

Adding the DWPI claims field (/CLM) may retrieve additional relevant results.

Learn more about DWPI claims coverage here: http://www.stn-international.com/dwpi_table.html

Search example: Reaction time (cont.)

```
=> S REACT? TIME/ADV (5A) TIM<2 HOURS
L4          153 REACT? TIME/ADV (5A) TIM<2 HOURS

=> D KWIC 1-153
```

More focused searches are possible using DWPI abstract sections, e.g. the advantage (/ADV).

```
L4   ANSWER … OF 153  WPIX COPYRIGHT 2012       THOMSON REUTERS on STN
ADV  ADVANTAGE - The method can greatly enhance catalytic activity, has
     reaction time of 1.5 hours and quickly form high molecular weight
     product at maximum molecular weight of more than 20; has body
     producing, simple..  .  .

L4   ANSWER … OF 153  WPIX COPYRIGHT 2012       THOMSON REUTERS on STN
ADV  ADVANTAGE - The reactor system does not use oxygen, has high
     temperature heating rate (1000-10000 K/s) and has short reaction time
     (less than 2 seconds). It is capable of providing short chain low
     molecular substance product and improves yield and quality of
     biological oil.
```

Search example: Reaction time (cont.)

```
=> S REACT? TIME/ADV (5A) TIM.EX<2 HOURS
L5          137 REACT? TIME/ADV (5A) TIM.EX<2 HOURS

=> S L4 NOT L5
L6           16 L4 NOT L5

=> D KWIC 1-16

L6   ANSWER … OF 16  WPIX COPYRIGHT 2012       THOMSON REUTERS on STN
ADV.  .  .  .  can be processed for obtaining the Na2Ta2O6 while the
      hydrothermal reaction temperature is lower than 150 degrees C and the
      reaction time is less than 8 hours.

L6   ANSWER … OF 16  WPIX COPYRIGHT 2012       THOMSON REUTERS on STN
ADV.  .  .  .  greater than 30 (preferably greater than 50) kg. The process
      of preparing omeprazole form B is carried out at total reaction time of
      less than 35 hours; is simple, cost-effective and large scale
      applicable; and has improved purification step.
```

Option: exclude indexed open ranges (.EX), as this may help focus the search even further.

Open range hits are not always relevant (L6).

Search example: Physical properties (PHP)

```
=> FILE PQSCITECH

=> S PER/PHP (5A) CAMPHOR
L1          250 PER/PHP (5A) CAMPHOR

=> D KWIC 1-2

L1      ANSWER 1 OF 250 PQSCITECH COPYRIGHT 2013 ProQuest LCC on STN.
AB      . . . the engine at a constant speed of 1500ANBrpm and compared
        with neat CSNO and diesel fuel operations. Among the blends 30%
        camphor oil blend with CSNO (CMPRO 30), shows good performance on
        par with diesel fuel operation with respect to brake thermal. . .

L1      ANSWER 2 OF 250 PQSCITECH COPYRIGHT 2013 ProQuest LCC on STN.
AB      . . . present study, the chemical constituents of Artemisia
        fukudo essential oil (AFE) were investigated using GC-MS. The major
        constituents were a-thujone (48.28%), b-thujone (12.69%), camphor
        (6.95%) and caryophyllene (6.01%). We also examined the effects of
        AFE on the production of nitric oxide (NO), prostaglandin E2 (PGE2),
        tumour necrosis factor. . .
```

Searching for a property in the Physical Properties (/PHP) field finds all property values and highlights them.

Example 1: Percentages PER/PHP

Search example: Physical properties (cont.)

```
=> S MM/PHP (5A) (?BLOCK(W)?POLYM? OR ?BLOCK?(T)?POLYM?)
L2          10 MM/PHP (5A) (?BLOCK(W)?POLYM? OR ?BLOCK?(T)?POLYM?)

=> D KWIC

L2      ANSWER 1 OF 10 PQSCITECH COPYRIGHT 2013 ProQuest LCC on STN.
AB      Poly(styrene-b-2-vinyl pyridine) (PS-b-P2VP) lamellar film which is
        hydrophobic block hydrophilic polyelectrolyte block polymer of
        52 kg/mol -b- 57 kg/mol and PS-b-P2VP film with reactive monomer
        (RM257) were prepared for photonic gel films. The lamellar stacks,
        which is alternating.  .  .

=> S LEN/PHP (5A) (LIPOSOM? OR (LIPID? (W) VESICL?))
L3          418 LEN/PHP (5A) (LIPOSOM? OR (LIPID? (W) VESICL?))

=> D KWIC

L3      ANSWER 1 OF 418 PQSCITECH COPYRIGHT 2013 ProQuest LCC on STN.
AB      .  .  .  the absence of shear. We describe here a robust flow chamber
        model that is applied to optimize the properties of 100 nm liposomes
        targeted to inflamed endothelium.
```

Example 2: Polymer Molecular Weight (MM/PHP).

Example 3: Liposome or Vesicle Size (LEN/PHP).

Typical numeric searches

Searching for **specific properties**.

```
=> S (LIGHT EMITTING DIODE OR LED) (5A) 620-740 NM /LEN
```

Searching for **percent values**.

```
=> S ALLOY AND TIN (1A) PER>90 AND SILVER (1A) 1-10/PER
```

Presence of **numeric properties.**

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

Review of numeric search options

```
=> S 50/VOL
L1          750 50 M**3 /VOL
```

Searching with **default units**.

```
=> S 50-60/VOL
L1          897 50 M**3 - 60 M**3 /VOL
```

Searching with **closed ranges**.

```
=> S 10-30 ML/VOL
L1         6440 10-30 ML/VOL
```

Searching with **other units**.

```
=> S TEMP < 5 C
L1       219653 TEMP<5 C
```

Searching with **open ranges**.

```
=> S 5 MM +-1/LEN
L1         58825 5 MM +-1/LEN
```

Searching with **tolerances**.

```
=> S 5 MM +-5%/LEN
L1         43389 5 MM +- 5%/LEN
```

Searching with **tolerances in %**

Fourteen STN databases now offer the Numeric Property Search (NPS) feature

Databases with the feature "NUMERIC PROPERTY SEARCH"

1MOBILITY	Global Mobility Bibliographic database	Summary Sheet
2MOBILITY	Global Mobility Standards database	Summary Sheet
AEROSPACE	The Aerospace and High Technology database	Summary Sheet
AGRICOLA	Food, agriculture and related fields database	Summary Sheet
AUPATFULL	Australian patent applications and specifications	Summary Sheet
CANPATFULL	Canadian patent applications and specifications	Summary Sheet
CNFULL	China (CN) Patents Full Text	Summary Sheet
COMPENDEX	Computerized Engineering Index and EI Engineering Meetings	Summary Sheet
ENCOMPPAT / ENCOMPPAT2	API EnCompass Patent Database	Summary Sheet
FSTA	Food Science Technology Abstracts	Summary Sheet
JPFULL	Patent Applications, Granted Patents and Utility Models	Summary Sheet
METADEX	Metals Abstracts/Alloy Index	Summary Sheet
PCTFULL	Patent Cooperation Treaty database	Summary Sheet
PQSCITECH	ProQuest Science and Technology	Summary Sheet
WPIDS	Derwent World Patents Index Subscriber File	Summary Sheet
WPINDEX	Derwe	Summary Sheet
WPIX	Derwent W	Summary Sheet

A list of STN databases with the NPS feature:
http://www.stn-international.com/nps_databases.html

Summary

- Numeric property search (NPS) is available several bibliographic files, e.g. COMPENDEX
- Search for specific units, percentages, or the presence of numeric values within the text
- Combine keyword and numeric terms within the text using standard STN proximity operators

Numeric property search fields and base units:
http://www.stn-international.com/pqscitech_nps.html

Resources

- 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/

- A list of STN databases with the NPS feature:

  http://www.stn-international.com/nps_databases.html

Appendix: Indexed Properties

Field Code	Property	Base Unit	Symbol
AOS	Amount of substance	Mol	mol
BIR	Bit Rate	Bit / Second	bit/s
BIT	Stored Information	Bit	bit
CAP	Capacitance	Farad	F
CDN	Current Density	Ampere / Square Meter	A/m2
CMOL	Molarity, Molar Concentration	Mol / Liter	mol/L
CON	Electrical Conductance	Siemens	S
DB	Decibel	Decibel	dB
DEG	Degree	Degree	°
DEN	Density, Mass Concentration	Kilogram / Cubic Meter	kg/m3
DEQ	Dose Equivalent	Sievert	Sv
DOS	Dosage	Milligram / Kilogram	mg/kg
DV	Viscosity, dynamic	Pascal x Second	Pa s
ECH	Electric Charge	Coulomb	C
ECD	Electric Charge Density	Coulomb / Square Meter	C/m2
ECO	Electrical Conductivity	Siemens / Meter	S/m
ELC	Electric Current	Ampere	A
ELF	Electric Field	Volt / Meter	V/m
ENE	Energy	Joule	J
ERE	Electrical Resistivity	Ohm x Meter	ohm m
FOR	Force	Newton	N

Appendix: Indexed Properties (cont.)

Field Code	Property	Base Unit	Symbol
FRE	Frequency	Hertz	Hz
IU	International Unit	none	IU
KV	Viscosity, kinematic	Square Meter/Second	m2/s
LEN	Length	Meter	m
LUMI	Luminous Intensity	Candela	cd
LUME	Luminous Emittance, Illuminance	Lux	lx
LUMF	Luminous Flux	Lumen	lm
M	Mass	Kilogram	kg
MCH	Mass to Charge Ratio	none	m/z
MFR	Mass Flow Rate	Kilogram/Second	kg/s
MFD	Magnetic Flux Density	Tesla	T
MM	Molar Mass, Molecular Weight	Gram / Mol	g/mol
MOLS	Molality of Substance	Mol / Kilogram	mol/kg
MVR	Melt Volume Rate	none	g/10 min
NUC	Nutrition Content	none	g/100 kcal
PER	Percent	none	%
PERA	Permittivity, Absolute	Farad / Meter	F/m
PHV	ph Value	pH	pH
POW	Power	Watt	W
PRES	Pressure	Pascal	Pa
RAD	Radioactivity	Becquerel	bq

Appendix: Indexed Properties (cont.)

Field Code	Property	Base Unit	Symbol
RES	Electrical Resistance	Ohm	Ohm
RSP	Rotational Speed	Revolution / Minute	rpm
SAR	Area	Square Meter	m2
SOL	Solubility	Gram / 100 gram	g/100g
STSC	Surface Tension, Spring Constant	Joule/ Square Meter	J/m2
TCO	Thermal Conductivity	Watt / Meter x Kelvin	W/m K
TEMP	Temperature	Kelvin	K
TIM	Time	Second	s
VEL	Velocity	Meter / Second	m/s
VELA	Velocity, angular	Radian / Second	rad/s
VLR	Volumetric Flow Rate	Cubic Meter / Second	m3/s
VOL	Volume	Cubic Meter	m3
VOLT	Voltage	Volt	V

Examples for additional units:

ENE (Energy): With base unit Joule (J)
Additional units: N m, W s, eV, erg, Btu, cal, ft-lbf

PRES (Pressure) With base unit Pascal (Pa)
Additional units: N/m2, dyn/cm2, bar, atu, mmHg, Torr, inHg, lb/in2, kg/m2

For more information …

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