STN International is the search tool for precision searching and comprehensive, timely, and high-quality coverage of science and intellectual property information. STN provides access to more than 170 databases from renowned producers and is the premier single source for the world’s disclosed scientific and technical research. STN is operated jointly by CAS and FIZ Karlsruhe worldwide and is represented in Japan by JAICI.
DWPI<sup>SM</sup> with new numeric property search feature – exclusively on STN!

Derwent World Patents Index® (DWPI<sup>SM</sup>, files WPINDEX/ WPIDS/ WPIX), the world’s most trusted and authoritative patent database, contains more than 22 million unique inventions covering 48 million individual patents and is used by thousands of organizations and 36 patent offices from all over the world. Its intellectual value is the result of a thorough editorial process of classification, abstracting, and indexing. Original titles and abstracts are rewritten to reveal the actual invention and highlight the main uses and advantages of the technology.

To add further value to this prestigious database on STN International, the leading online service for research and patent information, FIZ Karlsruhe has developed a unique new feature that allows for numeric property searching in the English text of all documents (enhanced title, abstracts, claims). Searchable properties and their respective base units comprise data like /SAR (Surface Area, m<sup>2</sup>)/CMOL (Molarity, Molar Concentration, mol/L), /DEN (Density, Mass Concentration, kg/m<sup>3</sup>), /MFR (Mass Flow Rate, kg/s), /MM (Molar Mass, Molecular Weight, g/mol), /VOL (Volume, m<sup>3</sup>) and many more.

Numeric values play a key role in patents which use chemical and physical properties to set the scope of patent protection in different technical areas, e.g. pharma, biotech, chemical, engineering. Exact values are typically expressed in broad ranges, and therefore difficult to retrieve. Searching numeric data in patents is challenging. On the one hand, the actual standard text searching tools are too limited, on the other hand, there is a great variety of properties and units and a great variation of representation.

**Numeric data identification and normalization**

Numeric property data lifted from all English-language text fields, e.g. claims, have been made accessible for searching

- Numbers and their units within the English-language text are extracted.
- About 1,800 property unit variants are identified.
- Numbers are considered from exact values, in closed ranges and open ranges.
- Numerals are detected as well.
- Identified original data are normalized to base units and indexed for searching.
- 55 numeric property search fields with their respective base units are available.
- 92 additional units are converted to base units.
A search employing numerical property field codes will cover data from all fields comprising text in English language (English title(s), abstract(s), and claim(s)). A search for a physical property value will not only find hits in the text showing the exact value but will also include hits where the value is part of a given range (e.g. => s 10/cmol will find “at least 0.008 mol/l” or => s 45/deg will find “0 to 80 degrees”). Open ranges encountered in the database like ‘less than 100 degrees’ have been indexed as well and are routinely searched through. Optionally these can be excluded from the search, effectively resembling the default searches in previous versions of the numeric property search feature.

Specific units are being normalized to a base units – in the majority SI base or derived units – both on indexing and from the query input in order to ensure retrieval of relevant values regardless of the units specified: A search for a temperature in Kelvin units will also retrieve documents with the corresponding value (ranges) in Degrees Celsius or Degrees Fahrenheit units. A search for an area in Square Meter units will also find documents with corresponding values (ranges) if these are given in Square Inches or Square Feet.

**Benefit from the new numeric property search feature!**
- Access numeric data of the enhanced Derwent Abstracts and get highly relevant results.
- Refinement of the numeric property search with keywords from the claims, the enhanced abstract and usage of the abstract subsections.
- Combination of the new high-precision search tool with the Derwent indexing, i.e., Manual Codes, Chemical Coding, Polymer Indexing.
- Refinement of structure search results from DCR, e.g., with reaction conditions like temperature or pressure or properties of formulations like particle size.

**Comprehensive Results with Numeric Property Search**

Example: Liposomes with a size of 100-110 nm

**Without Numeric Property Search: Long and cumbersome query input, with the risk of missing results**

=> FILE WPIX

=> S (LIPOSOM? or LIPID(w)VESCICL?)/NOV (P) ((100# or 101# or 102# or 103# or 104# or 105# or 106# or 107# or 108# or 109# or 110#) (5a) (nm or nanometer))

L1 29 (LIPOSOM? OR LIPID(W)VESICL?) /NOV (P) ((100# OR 101# OR 102# OR 103# OR 104# OR 105# OR 106# OR 107# OR 108# OR 109# OR 110#) (5A) (NM OR NANOmeter))

**With Numeric Property Search: A short query input, retrieving more documents**

=> s (LIPOSOM? or LIPID(w)VESCICL?) /NOV (P) (100-110 nm/LEN)

=> L2 96 (LIPOSOM? OR LIPID(W)VESICL?) (P) (100-110 NM/LEN)

=> s 12 not 11

L3 ANSWER 1 OF 75 WPIX COPYRIGHT 2012 THOMSON REUTERS on STN

NOV NOVELTY - Liposome within which RNA encoding an immunogen of interest is encapsulated, is claimed, where the liposome has a diameter of 60-180 nm.

**Relevant results, easily retrievable only with Numeric Property Search**

L3 ANSWER 2 OF 75 WPIX COPYRIGHT 2012 THOMSON REUTERS on STN

NOV NOVELTY - Liposomal formulation for ocular drug delivery comprises: liposomes comprising at least one lipid bilayer; and a prostaglandin drug and/or a prostaglandin derivative associated in the liposomes, where the liposomes have a mean diameter of less than 2 mu m.
Searching numeric property data in 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., claims (/CLM)

- Flexible data input options are available
  - 55 chemical and physical numeric fields
  - Ranges, exact values and tolerances
  - A wide variety of STN search units
  - All values searched using accepted units are automatically converted for searching, e.g. 100 °C → 373.15 K

Flexible search input options

```plaintext
=> FILE WPIX

=> S PARTICLE (3A) SIZE (3A) LEN<=100 NM
L1 35558 PARTICLE (3A) SIZE (3A) SIZ<=100 NM
  The base unit for size is meter.

=> S PARTICLE (3A) SIZE (3A) LEN<=0.0000001 M
L2 35558 PARTICLE (3A) SIZE (3A) LEN<=0.0000001 M
  Scientific notation is supported.

=> S PARTICLE (3A) SIZE (3A) LEN<=1.0E-7 M
L3 35558 PARTICLE (3A) SIZE (3A) LEN<=1.0E-7 M
  SIZ is a synonym for LEN.

=> S PARTICLE (3A) SIZE (3A) SIZ<=1.0E-7 M
L4 35558 PARTICLE (3A) SIZE (3A) SIZ<=1.0E-7 M

=> S PARTICLE (3A) SIZE (3A) 1-100 NM/LEN
L1 35381 PARTICLE (3A) SIZE (3A) 1-100 NM/LEN

=> D KWIC

L25 ANSWER 6 OF 35381 WPIX COPYRIGHT 2012 THOMSON REUTERS on STN

45-100 mN/m. The water-soluble polymer has a weight-average molecular weight of 500-120000. The abrasive is colloidal silica having an average particle size of 1-40 nm based on scattering intensity distribution.
```

KWIC is a free review format for text searches.
Searching with tolerances

=> FILE WPIX
=> S 99-101 C/TEMP
L1   310496 100+-1 C/TEMP
This closed range (L1) could be searched with a tolerance of ± 1 (L2) as well.

=> S 100+-1 C/TEMP
L2   310496 100+-1 C/TEMP

=> SET TOLERANCE TEMP=1
SET COMMAND COMPLETED

=> S 100/TEMP
L3   310496 100+-1 C/TEMP
Percent-based tolerances can also be used (L4, L5).

=> S 100 C/TEMP
L4   310496 100+-1% C/TEMP
1% of 100 = 1, so L4 = 99 - 101 °C

=> S 200/TEMP
L5   231593 200 C+-1% /TEMP
1% of 200 = 2, so L5 = 198 - 202 °C

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

Unit conversion

=> FILE WPIX
=> S 100000 - 200000/PRES
L1   72205 100000 PA - 200000 PA /PRES

=> S 1 - 2 BAR/PRES
L2   72205 1 - 2 BAR/PRES

=> SET UNIT PRES=BAR
SET COMMAND COMPLETED

=> S 1 - 2/PRES
L3   72205 1 BAR - 2 BAR /PRES
The base unit for pressure (/PRES) is Pascal (Pa).

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

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.

=> D KWIC 1-2
L3   ANSWER 1 OF 5124  WPIX COPYRIGHT 2012       THOMSON REUTERS on STN
... furnace system is 0.1-1500 torr. The method further comprises:doping the ZnO single crystal boule during the PVT growth with at least one positive (p)-type ... at 600-1400 degrees C in an oxygen-containing gas environment at an oxygen partial pressure of greater than or equal to 100 torr, and the ZnO wafer have a p-type conduction and a resistivity of ...

L3   ANSWER 2 OF 5124  WPIX COPYRIGHT 2012       THOMSON REUTERS on STN
... a slurry of the absorbent resin, subjecting the column to a high pressure that is less than or equal to 1500 psi and is sufficient to compress that absorbent resin to avoid voids in it, and eluting an organic solution through the loaded chromatographic column under a medium pressure that is less than 300 psi to provide an organic solution.
Searching of exact values

An exact value (L1)

L1  6477 100 C/TEMP(3A) (MELTING(W) POINT OR MP)

A closed range (L2)

L2  6540 99-101 C/TEMP(3A) (MELTING(W) POINT OR MP)

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

Conclusion: Even if you have an exact value in mind, you may want to search a closed range.

Searching of open ranges

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

L1  100082 VOLT>0.5 V

Open ranges are truly "open"—and may retrieve unintended results.

Open range searches may also exceed system limits.

Restricting the range allows the search to complete.

Conclusion: Even if you have an open range in mind, you may want to search a closed range.
Search example: Cisplatin dosage
We are looking for records describing a cisplatin dosage of less than 16 mg/kg.

=> FILE WPIX
=> S CISPLATIN/CN
L1 2 CISPLATIN/CN
=> SEL CN
E1 THROUGH E40 ASSIGNED
=> D SEL
E1 4 CISPLATIN/CN
E2 1 ABIPLATIN/CN
E3 1 BRIPLATIN/CN
E4 1 CDDP/CN
E5 1 CIS-DDP/CN
E6 1 CIS-PLATINUM/CN
E7 1 CISMAPLAT/CN
E8 1 CISPLATINE/CN
E9 1 CISPLATINO/CN

=> S E1-E40/BI,CLM (5A) DOS<16
L2 71 (CISPLATIN/BI OR ABIPLATIN/BI OR ... ) (5A) DOS<16 MG/KG
=> D KWIC 1-71
L2 ANSWER ... OF 71 WPIX COPYRIGHT 2012 THOMSON REUTERS on STN
TECH
PHARMACEUTICALS - Preferred Components: The dosage quantities of each
ingredients are [mg/kg of cis-platinum], 0.2 l/kg of super-liquid iodized oil,
and 0.6 Ug/kf of bafilomycin A1 or 60 mg/kg ...

L2 ANSWER ... OF 71 WPIX COPYRIGHT 2012 THOMSON REUTERS on STN
ABEX ADMINISTRATION - Administration of the cisplatin is 10 mg/kg,
intraperitoneally or orally. Administration of the NK1 receptor antagonist is
intravenous.

L2 ANSWER ... OF 71 WPIX COPYRIGHT 2012 THOMSON REUTERS on STN
ACTV ... disulfide in physiological saline was administered at 40
mg/kg/day via intraperitoneal (IP) injections. At one hour after MPG disulfide
administration, cisplatin (2 mg/kg) was administered to these rats by IP. MPG
treatment alone without cisplatin ...

To be more comprehensive, the various DWPI Chemistry Resource
(DCR) chemical names (/CN) for cisplatin (E1-E40) are used.

Retrieving a dosage (/DOS) of less than 16 mg/kg.

An online help “HELP NPS” (Help Numeric Property Search) gives a complete list of properties plus a
detailed description of the new numeric search capability in the DWPI database.

The /PHP index contains the complete list of codes and the related text for all available properties.

Please note that EXPAND is not available for the
numerical property search fields.

Search examples for the different properties are included in the DWPI Summary Sheet.

More information
About STN International

STN® International (www.stn-international.de), the premium online service in science and patent information, provides access to nearly 200 databases from renowned producers. Only STN offers DWPI™, CAPlus™/CAS REGISTRY™ and INPADOCDB/INPA-FAMDB on a single platform. STN’s powerful, transparent retrieval system allows for text, factual, chemical structure and biosequence searches. The numeric search feature for physical and chemical properties is unique in the world. Also available are excellent analysis, visualization and post-processing tools. With precise and comprehensive information, STN supports information professionals in answering business-critical questions by offering them complete and topical information that meets the highest quality standards. Top priority is given to data privacy protection, data security, and confidentiality. STN® is jointly operated by FIZ Karlsruhe (Europe) and Chemical Abstracts Service (USA), and is represented in Japan by JAICI.

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