About patents EDCH

Bibliothèque de l’EPFL

A simple question

Are you allowed to use patented compounds or processes?

A common misconception

Are you allowed to use patented compounds or processes?

Not if you want to use them for commercial purposes in the designated country/countries during the validity period.

=> in many cases **YES**

About patents

A patent is an exclusive right granted for an invention, which is a product or a process that provides, in general, a new way of doing something, or offers a new technical solution to a problem. To get a patent, technical information about the invention must be disclosed to the public in a patent application.

- What kind of protection does a patent offer?
In principle, the patent owner has the exclusive right to prevent or stop others from commercially exploiting the patented invention. In other words, patent protection means that the invention cannot be commercially made, used, distributed, imported or sold by others without the patent owner's consent.

- Is a patent valid in every country?
Patents are territorial rights. In general, the exclusive rights are only applicable in the country or region in which a patent has been filed and granted, in accordance with the law of that country or region.

- How long does a patent last?
The protection is granted for a limited period, generally 20 years from the filing date of the application.

Source: World Intellectual Property Oganization https://www.wipo.int/patents/en/

Differences between articles & patents

- Unless Open Access, reading articles involves a subscription; patents essentially free to read nowadays.
- Article text usually clear, scientific & factual; patent language as broad and generic as the examiners will accept.
- Basic element of information in articles: a result. In a patent: a claim.

- Traditionally found in different databases (Web of Science, Google Scholar, etc. vs. Derwent, Espacenet, Google Patents...). **SciFinder & Reaxys are exception to that rule. Google Scholar has added support as well**. Scopus support for patents was withdrawn in June 2025 to be re-designed.

Anatomy of a (modern) patent document

A good reference : https://www.fr.com/anatomy-of-a-patent/

Patent families

Searching for patents often yields patent families instead of single documents.

- multiple patent numbers from various countries, with various statuses
- based on the same invention
- can include different claims ⚠
- different tools use different criteria to define a family: based on a single priority date at EPO, further manual assignment by experts at CAS...

https://www.epo.org/searching-for-patents/helpful-resources/first-time-here/patent-families.html

Patents in CAPLUS and Scifinder

Example :

https://scifinder-n.cas.org/searchDetail/reference/6184d43b3e3f852be1fdb6dc/referenceDetails

Life cycle of a patent

With my eternal thanks to the European Patent Office:

https://www.epo.org/en/learning/learning-resources-profile/business-and-ip-managers/inventors-handbook/protecting-your-idea

… and then, if everything goes according to plan, 20 years of commercial validity.
Some possible exceptions:

- exclusively transfered to a new holder (sold, given away...)
- successfully challenged in court
- not renewed (e.g. yearly fees due from 4th year after the filing date in Switzerland)

Further patent education and training

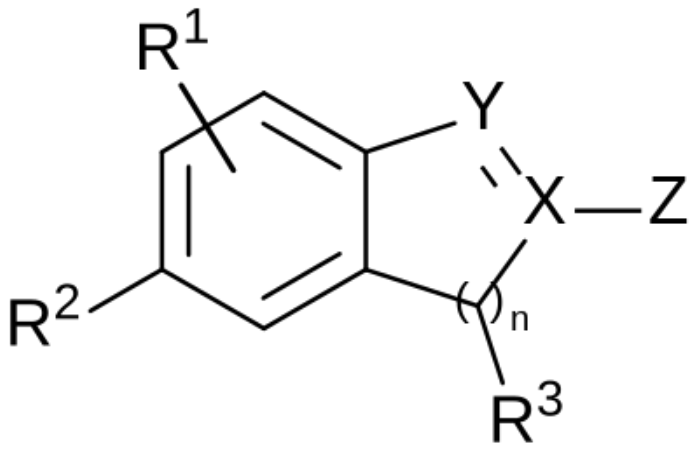
The EPFL Techology Transfer Office presents its ENG-623 Management of Innovation and Technology Transfer (mintt) doctoral course:

https://mintt.epfl.ch

- many more details about patents (possibly more accurate ;-))
- broader coverage of intellectual property
- innovation and startups

=> 3 ECTS credits

Chemical compounds in patents: Markush structures



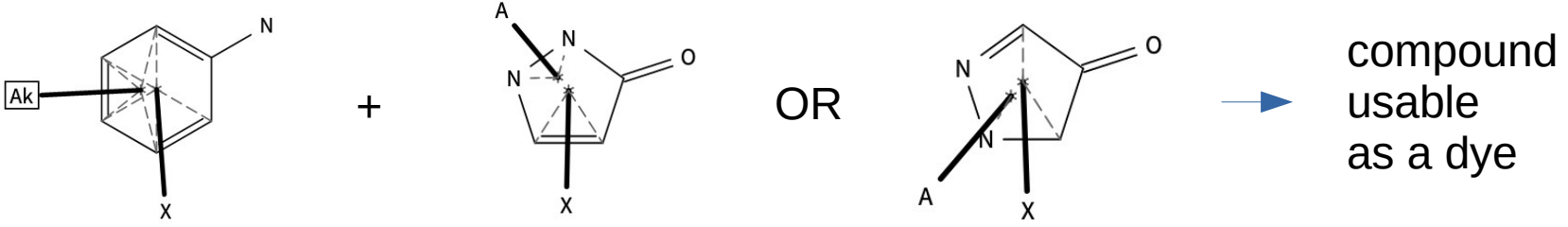
Listing all possible structures for compounds from a patent is often impossible
=> Scifinder contains a specific database (MARPAT) for such generic structures. Records found in this database are not substances, instead one goes directly to patents.

Fun fact: searching for Markush structures has been the subject of patents such as :
D. Renaud, J.-C. Roussel, Method and Storage/Retrieval System of Chemical Formulae in a Database, 1991, EP0451049A1.

What did Markush say ?

E. A. Markush, Pyrazolone Dye and Process of Making the Same, 1924, US1506316A.

« I have discovered that the diazo compound of **unsulphonated amidobenzol (aniline) or its homologues (such as toluidine, xylidine, etc.) in all their isomeric forms such as their ortho, meta and para compounds, or in their mixtures or halogen substitutes**, may be coupled with **halogen substituted pyrazolones (such as dichlorsulphophenylmethylpyrazolone or dichlorsulphophenyl-carboxylic-acid pyrazolone)** to produce dyes which are exceptionaly fast to light, which will dye wool and silk from an acidulated bath. »



Markush structures: a selection of recent developments

- Extraction of Markush structures (combining graph and text analysis) from PDF documents using machine learning [P. Sun, X. Lyu, X. Li, B. Wang, X. Yi, Z. Tang, in 2018 IEEE International Conference on Bioinformatics and Biomedicine (BIBM), 2018, pp. 1126–1129]
- Study of the presence of substructures vs. Markush structures for sample drugs in patent databases [A. Barth, World Patent Information 2018, 53, 49–57]
- Generation of Markush structures from collections of example structures [P. Kovács, G. Botka, Á. Figyelmesi, World Patent Information 2019, 57, 59–69]
- Computer-aided Markush structure generation for patent drafting [P.-H. Wang, Y. J. Tseng, Journal of Cheminformatics 2019, 11, 78]
- Quantum computing for patent searching [P.-H. Wang, J.-H. Chen, Y. J. Tseng, Scientific Reports 2022, 12, 72]
- MarkushGrapher: Joint Visual and Textual Recognition of Markush Structures [L. Morin, V. Weber, A. Nassar, G. I. Meijer, L. Van Gool, Y. Li, P. Staar; Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2025, pp. 14505-14515