Claim: A process for making the product X, wherein the pH is adjusted from pH 4 to pH 7.

Client makes the product according to the process but adjust pH to 8.

An apparatus for floor cleaning wherein:
….
(d): two plates are kept together by use of a screw.

Client makes the same apparatus but wherein the plates of (d) are kept together by use of a strong clue.

Local courts => appeals => United States Court of Appeals for the Federal Circuit => Supreme Court.

The doctrine of equivalents originally made (more than a century ago) in order to protect “small inventor” from someone “stealing/copying” his invention.

Today patents made by “professionals” using/misusing the system to the limit.

Protect inventor <-> Legal security.

Case law develops in direction Legal security.

Warner-Jenkinson Co. v. Hilton Davis Chemical Co; Federal Circuit, USA. (supreme court).

The doctrine of equivalents rests on the substantiality of the differences between the claimed and accused products or processes, assessed according to an objective standard".

The determination of equivalence should be applied on an element-by-element basis.

An important question is "whether persons reasonably skilled in the art would have known of the interchangeability of an ingredient not contained in the patent with one that was."

Another test may be the "Triple Identity" test defined as to investigate if the possible equivalent "performs substantially the same function in substantially the same way to obtain the same result."

element-by-element:
Floor cleaning apparatus of claim and client performs substantially the same function [clean the floor] in substantially the same way [use liquid detergent] to obtain the same result [same degree of cleanness].

Only element different is “screw” / “clue” => should only focus on this and not on whole apparatus.

Patent description states that a screw is used in order to be able to easy change a possible damaged plate.

Client use of a strong clue does not give this result => could maybe argue no doc. of equiv. infringement.

The proper time for evaluating equivalency - and thus knowledge of interchangeability between elements is at the time of infringement, not at the time the patent was issued.

FESTO CORPORATION v. SHOKETSU KINZOKU KOGYO KABUSHIKI CO., LTD.
(Federal circuit)

In relation to Question 3 the court said:
Under the flexible bar approach [approach before this decision] …consider, for example, a claim that originally recited a value "less than twenty" that was amended to recite a value "less than five" in light of a rejection over prior art disclosing a value of fifteen. What subject matter was abandoned under the flexible approach? Is the patentee limited to values that are closer to five than fifteen, or can he reach any value less than fifteen? Can the patentee encompass by equivalents a value of ten, or would that recapture part of the surrendered subject matter? Put simply, it is impossible, even under this basic example, for the public or the patentee to determine the precise range of equivalents available under the flexible bar approach. This creates a "zone of uncertainty which enterprise and experimentation may enter only at the risk of infringement claims . . .
A complete bar, unlike a flexible bar, thus lends certainty to the process of determining the scope of protection afforded by a patent. With a complete bar, both the public and the patentee know that once an element of a claim is narrowed by amendment for a reason related to patentability, that element's scope of coverage will not extend beyond its literal terms. There is no speculation or uncertainty as to the exact range of equivalents that might be available.

Answer Question 1: For the purposes of determining whether an amendment gives rise to prosecution history estoppel, a "substantial reason related to patentability" is not limited to overcoming or avoiding prior art, but instead includes any reason which relates to the statutory requirements for a patent. Therefore, a narrowing amendment made for any reason related to the statutory requirements for a patent will give rise to prosecution history estoppel with respect to the amended claim element.

Answer Question 2: Voluntary claim amendments are treated the same as other amendments. Therefore, a voluntary amendment that narrows the scope of a claim for a reason related to the statutory requirements for a patent will give rise to prosecution history estoppel as to the amended claim element.

Answer Question 3: When a claim amendment creates prosecution history estoppel with regard to a claim element, there is no range of equivalents available for the amended claim element. Application of the doctrine of equivalents to the claim element is **completely barred** (a "complete bar").

Answer Question 4: When no explanation for a claim amendment is established, no range of equivalents is available for the claim element so amended.

Conclusion:
Virtually all amendments, limiting the claim, gives a claim with only a literal scope, i.e. no possibility of using doc. of equivalence, in relation to the amended feature.

If the term “pH is adjusted from pH 4 to pH 7” is an amendment of original claim reading “from pH 2 to 10” then client process adjusting “pH to 8” should involve no risk of infringement.

Patent strategy:
One may consider to file more limited claims than usual in order not to get any rejections forcing one to amend the claims.

Sage Products Inc. v. Devon Industries Inc:

Sage Products claims recited that the container contained a slot "at the top of the container body.". Devon developed a container, which comprised a slot element within the container body rather than on the top.

No infringement under the doctrine of equivalents, "because this issued patent contains clear structural limitations, the public has a right to rely on those limits in conducting its business activities. This court will not effectively remove such a limitation under a doctrine designed to prevent "fraud on a patent.".

To support its decision the court stated:

A skilled patent drafter would foresee the limiting potential of the "over said slot" limitation.

If Sage desired broad patent protection for any container that performed a function similar to its claimed container, it could have sought claims with fewer structural encumbrances.

as between the patentee who had a clear opportunity to negotiate broader claims but did not do so, and the public at large, it is the patentee who must bear the cost of its failure to seek protection for this foreseeable alteration of its claimed structure.

Tanabe Seiyaku Co. v. International Trade Commission.

Tanabe has a patent on a method of producing a compound comprising condensing two intermediates:

(a) in the presence of potassium hydroxide in acetone (CH3-CO-CH3) or

(b) in the presence of potassium carbonate in a solvent selected from acetone, a lower alkyl acetate, ..

The accused infringer used potassium hydroxide in butanone (CH3-CH2-CO-CH3) rather than of acetone in its process.

Summary:

Identify the possible differences between product/process claim and client product/process claim on an element by element basis *(Warner-Jenkinson Co. v. Hilton Davis Chemical Co).*

Check if the corresponding element(s) of claim could be said to be clearly defined terms (e.g. from 50°C to 80°C). If so it could be argued that only literal protection of claim *(Sage Products Inc. v. Devon Industries Inc).*

Check if the corresponding element(s) of claim is an amendment of original claim *(FESTO CORPORATION v. SHOKETSU KINZOKU KOGYO KABUSHIKI CO., LTD.).*

Patent: A+B+C.
Client product: A+B+D (D is different from C).

Apply for a patent with claims limited to product A+B+D. Remember to cite patent of A+B+C.

“Zygo Corporation v. Wyko Corporation. In that case, Wyko obtained a patent over the Zygo patent in issue, and the court found, that "the nonobviousness of the accused device, evidenced by the grant of a United States patent, is relevant to the issue of whether the change therein is substantial." Accordingly, a finding of infringement under the doctrine of equivalents was reversed, with separate patentability being one of the cited reasons.”

Filing of patent may also fix the date of “time of infringement” to patent filing date, i.e. may be years before product on market.

AMGEN INC.(Plaintiff) v HOECHST MARION ROUSSEL, INC. and TRANSKARYOTIC THERAPIES (Defendants). UNITED STATES DISTRICT COURT DISTRICT OF MASSACHUSETTS.(EPO case)

Claim to ("080"): An isolated EPO …, wherein said erythropoietin glycoprotein comprises the mature erythropoietin amino acid sequence of FIG. 6…".

FIG6 showed a 166 mature amino acid sequence.

For unknown reasons infringer product was cleaved off at argine166 during the secretion giving a 165 aa product.

However, court said infringement under doc. of equivalence since patentee could demonstrate that this had no effect on EPO therapeutic activity, i.e. "accused composition performs substantially the same function in substantially the same way to obtain substantially the same result".

Bengt Domeij, “The doctrine of equivalence and pharmaceutical patents”, NIR 3:504-523 (1999):

“In a product patent … A structural formula will define the literal scope of protection with good accuracy. A common remark is that this clarity should be preserved and the murky waters of equivalence strictly confined, although they may not be completely absent”

“Probably, the scope for the doctrine of equivalence is larger in regard to process claims than in regard to product claims”