

# Knobbe Martens

Knobbe Practice Webinar Series:

## Strategic Considerations for Chemical Practice Claim Drafting

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# Part I – Understanding Claims in U.S. Patent Applications

# Claim Structure

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- Preamble
  - Provides context for the claimed invention
    - USPTO art units
  - May or may not limit the claim
    - As a general rule, preamble is not limiting
    - Limiting when preamble “breathes life and meaning to the claim”
  - “An **optical waveguide**, comprising... glass ...” was interpreted to require glass of sufficient purity to function as an optical waveguide
  - “A **method of treating migraines**, comprising...[using a composition]” was interpreted to be limited to treatment of migraines
    - Claim is directed to “what the method does”



# Claim Structure

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- Transitional phrase
  - Determines if the claim is “open” (comprising), “closed” (consisting of), or “partially open” (consisting essentially of)
    - “Comprising” is most common
    - “Consisting essentially of” excludes recited elements other than the recited elements unless they do not materially affect the “basic and novel characteristics” of the claimed invention
      - Examiners treat as “comprising” unless basic and novel characteristics from specification are pointed out
      - Burden is on applicant to show that prior art elements affect the basic and novel characteristics
    - “Consisting of” means only those recited elements/steps

## Claim Structure – Connecting the elements

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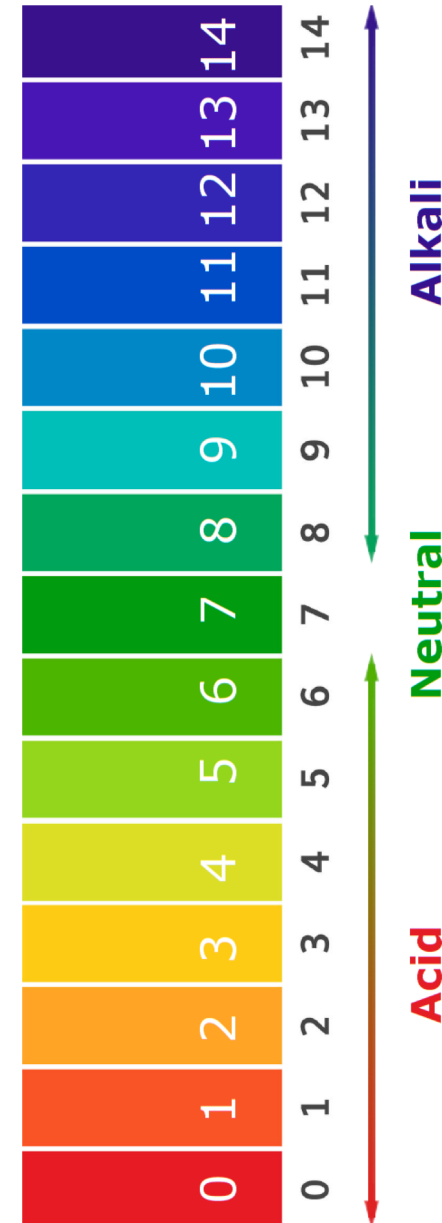
A method for oxidizing **metal** on a decorative **surface**, comprising:

- identifying **portions to be oxidized** on the **surface** based on a pattern to be formed the **metal**;
- treating the **portions to be oxidized** with **acetic acid**;
- during the period of treating with the **acetic acid**, applying an **electric current** to the **surface** in an amount sufficient to oxidize the **portions to be oxidized**; and
- within 24 hours after applying the **electric current**, coating the **portions to be oxidized** with polyurethane.

## Part II – Selecting Subject Matter and Claim Strategy in U.S. Patent Applications

# Subject Matter Patentable over the Prior Art – Chemistry

- Identifying subject matter patentable over the prior art
  - What makes invention more effective, less expensive, faster, less toxic, more accurate, etc.
  - What is different about the composition or method from earlier compositions and methods
- Examples
  - Use of an old composition for a new purpose
  - Increasing the pH of a composition to achieve much longer shelf life
  - Decreasing the concentration of an expensive ingredient without loss of effect
  - Using reverse osmosis purification of a composition prior to testing to increase rate of reaction



# Claim Drafting – Terms and Phrases with Special Meaning/Purpose

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- Counting/Numbers
  - "Plurality" – Two or more
  - "At least one" – Meaning no different than "a" or "an" when transition is "comprising"
  - "Two" or "Three", etc.—sometimes interpreted as that exact number even when transition is "comprising"
- Associations
  - "Each" - Places a limitation on every member of a group: "wherein each alkyl group carries a substituent ..."
  - "Individual" - Places a limitation on some member of a group: "wherein individual alkenyl groups are configured with local"
- Combinations or Alternatives
  - "And" - Standard meaning as a conjunctive: "wherein the widget has a first part **and** a second part"
  - Markush language: "selected from the group consisting of X, Y and Z"—"and" must be used even though meaning is the same as "or".



# Claim Drafting – Terms and Phrases with Special Meaning/Purpose

- Potential Problem Terms

- Relative terminology - "relatively large", "similar", "about", etc.

- Fails to provide standard for measuring degree

- Exemplary terminology - "such as", "for example", "preferably"

- Unclear language

- Proper manner of achieving this in U.S. practice is to set forth in dependent claim

- "Optionally"

- Sometimes acceptable

- Useful with "consisting of" or "consisting essentially of"

- "Optionally substituted with ..."



## Part III – Written Description Issues under 35 U.S.C. 112(a)

## 35 U.S.C. 112(a)

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The specification shall contain a **written description** of the invention, **and** of the manner and process of making and using it, in such full, clear, concise, and exact terms as to **enable any person skilled in the art** to which it pertains, or with which it is most nearly connected, **to make and use** the same, and shall set forth the **best mode** contemplated by the inventor or joint inventor of carrying out the invention.

- Case law holds that "**a written description of the invention**" means sufficient detail that one skilled in the art can reasonably conclude that the *inventor had possession of the claimed invention*. See, *Vas-Cath, Inc. v. Mahurkar* (Fed. Cir. 1991).
- At same time, enablement requires that specification describe *how to make and use the invention*.

### GENUS WITH WIDELY VARYING SPECIES

Examples: “a rust inhibitor”, “a catalyst”, “an organic acid”

- Written description issues less likely:
  - Virtually any species within genus can be used in invention
  - A wide variety of species can be used and one skilled in the art could identify effective ones using well-known techniques or techniques described in specification or we
- Written description issues more likely:
  - Only very particular species can be used
  - Techniques for identifying effective species neither well-known nor described in specification

### METHODS USING COMPOUNDS CLAIMED BY FUNCTIONAL LIMITATIONS

1. A method for preparing a nickel oxide-iron material from an iron-nickel alloy, comprising applying a compound that selectively inhibits oxidation of iron but not nickel to the alloy.

- Claim requires a selective inhibitor of iron but not nickel.
- If specification discloses many such compounds or such compounds are well-known, possession of the invention might be present.
- If small number of such compounds disclosed in specification, possession of invention likely not shown

## METHODS OF IDENTIFYING COMPOUNDS

2. A method for identifying a compound that selectively inhibits oxidation of iron but not nickel, comprising [*carrying out specific steps*].

- Written Description issues less likely to arise even if only small number of compounds identified disclosed in specification
- Inventors only need to show possession of the specific steps, not the compounds identified

## Claim Drafting – Written Description Issues

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### COMPOUNDS IDENTIFIED BY A METHOD

3. A compound identified by the method of claim 2.

- Inventors only have possession of compounds disclosed in specification
- No possession of unknown compounds to be identified by method.



## Part IV – Sample Claims

## Claim Drafting – Sample Claim A

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1. A compound having the following structure:



wherein:

$R_1$  is selected from the group consisting of alkyl, alkenyl, or phenyl,

$R_2$  is an alkenyl group having 3 or more carbons, preferably at least 6 carbons, more preferably from 8 to 22 carbons,

$R_3$  is an imide-containing group that is non-carcinogenic,

$R_4$  is optional, but if present, is a methyl group,

$R_5$  is a blocking group, such as a sulfonyl group, and

$n$  is any rational number.

## Claim Drafting – Sample Claim A

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1. A compound having the following structure:



wherein:

R<sub>1</sub> is selected from the group consisting of alkyl, alkenyl, **or** phenyl,

R<sub>2</sub> is an alkenyl group having 3 or more carbons, **preferably at least 6 carbons, more preferably from 8 to 22 carbons,**

R<sub>3</sub> is an imide-containing group **that is non-carcinogenic,**

R<sub>4</sub> is **optional, but if present, is a methyl group,**

R<sub>5</sub> is a **blocking group, such as a sulfonyl group,** and

n is any **rational** number.

## Claim Drafting – Sample Claim A

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1. A compound having the following structure:



wherein:

$R_1$  is selected from the group consisting of alkyl, alkenyl, and phenyl,

$R_2$  is an alkenyl group having 3 or more carbons,

$R_3$  is an imide-containing group that does not appear in the February 25, 2022 California Proposition 65 Listing of Hazardous Substances,

$R_4$  is absent or is a methyl group,

$R_5$  is a blocking group, and

$n$  is any whole number.

2. The compound of claim 1, wherein  $R_2$  has at least 6 carbons.
3. The compound of claim 2, wherein  $R_2$  has 8 to 22 carbons.
4. The compound of claim 1, wherein  $R_5$  comprises a sulfonyl group.

## Claim Drafting – Sample Claim B

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Invention is based on unexpected discovery that when aspirin is dissolved in hexanol and the hexanol is evaporated, the residue can be suspended in a hyaluronate solution and applied to plants to protect the plants from insects.

1. A method of making an insecticidal composition comprising dissolving aspirin in hexanol, evaporating the hexanol residue, and suspending the residue in a hyaluronate solution.
2. An insecticidal composition comprising aspirin.
3. An insecticidal composition comprising aspirin and a viscous solvent.
4. An insecticidal composition comprising aspirin and a mucopolysaccharide.
5. An insecticidal composition prepared by the method of claim 1.
6. A method of protecting plants from insects comprising applying aspirin to the plants.

## Claim Drafting – Sample Claim B

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1. A method of making an insecticidal composition comprising dissolving aspirin in hexanol, evaporating the hexanol residue, and suspending the residue in a hyaluronate solution.
2. An insecticidal composition comprising aspirin.
3. An insecticidal composition comprising aspirin and a viscous solvent.
4. An insecticidal composition comprising aspirin and a glycosaminoglycan.
5. An insecticidal composition prepared by the method of claim 1.
6. A method of protecting plants from insects comprising applying aspirin to the plants.
7. A method of protecting plants from insects comprising applying an insecticidal composition prepared by the method of claim 1 to the plants.

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