

## TRAINING EXAMPLES

### *Supplementary Examination Guidelines for Determining Compliance with 35 U.S.C. § 112 and for Treatment of Related Issues in Patent Applications, 76 FR 7,162 (Feb. 9, 2011)*

<b>I. EXAMPLES OF DEFINITE AND INDEFINITE CLAIM LANGUAGE UNDER 35 U.S.C. § 112, ¶2</b>	<b>1</b>
A. Functional claim language	1
B. Relative terminology ( <i>e.g.</i> , terms of degree, subjective terms)	3
C. Numerical ranges and amounts	10
D. Antecedent basis	11
E. Terms of art	11
F. Breadth is not indefiniteness	12
G. Correspondence between specification and claims	13
<b>II. EXAMPLES OF CLAIM TERMS OTHER THAN “MEANS FOR” THAT MAY INVOKE 35 U.S.C. § 112, ¶ 6</b>	<b>13</b>
A. “Mechanism”	13
B. “Member”	16
C. “Element”	18
D. “Circuit”/“Circuitry”	19
E. “Detector”	20
F. “Assembly”	21
<b>III. EXAMPLES OF CLAIM LIMITATIONS THAT INVOKE 35 U.S.C. § 112, ¶ 6 EVALUATED FOR COMPLIANCE WITH 35 U.S.C. § 112, ¶ 2</b>	<b>21</b>
A. Examples illustrating when an indefiniteness rejection is appropriate	22
B. Examples illustrating when an indefiniteness rejection is <u>not</u> appropriate	27
<b>IV. EXAMPLES OF RELATED ISSUES UNDER 35 U.S.C. § 112, ¶1</b>	<b>33</b>
A. Lack of written description support for broad claim limitations	33
B. Lack of enablement for full scope of broad claim	37
C. Written description support for claims covering only one of several problems disclosed or covering only one of several solutions disclosed for the same problem	39
D. “Single means”-type claims	41

## I. EXAMPLES OF DEFINITE AND INDEFINITE CLAIM LANGUAGE UNDER 35 U.S.C. § 112, ¶2

The following examples are provided to support the concepts set forth in the *Supplementary Examination Guidelines for Determining Compliance with 35 U.S.C. 112 and for Treatment of Related Issues in Patent Applications*, 76 Fed. Reg. 7,162 (Feb. 9, 2011) (the 2011 Supplementary Guidelines). The examples are drawn from case law and, together with the 2011 Supplementary Guidelines, supplement the guidance provided in the MPEP on specific topics related to issues under 35 U.S.C. § 112, ¶2 (§ 112, ¶2) and highlight some of the areas in which questions of definiteness commonly arise: functional claim language, terms of degree, subjective terms, the mixed claiming of an apparatus and method within a single claim, numerical ranges and amounts, antecedent basis, terms of art, broad claims, and correspondence between specification and claims.

### A. Functional claim language

#### 1. *United Carbon Co. v. Binney & Smith Co.*, 317 U.S. 228, 55 USPQ 381 (1942)

*Representative Claim (U.S. Patent No. 1,889,429):*

1. Substantially pure carbon black in the form of commercially uniform, comparatively small, rounded, smooth aggregates having a **spongy or porous** interior.

*Background:* The particles of carbon black in its original form are extremely fine and dispersable, causing clouds of dust when handled. One use for carbon black is as a binder in automobile tires. The claimed invention relates to carbon black in aggregated form to address the problem of carbon-black dust. The assignee of the patent asserted that the “product consists of carbon black aggregates formed without the use of any binder, sufficiently hard and flowable to prevent the formation of dust, yet sufficiently friable and dispersable for use as a component in the manufacture of rubber and other products.”

*Analysis/Conclusion:* The Court analyzed the terms “spongy” and “porous” as functional terms and determined that they are synonymous relating “to the density and gas content of aggregates of carbon black.” The Court also determined that “substantially pure” refers “to freedom from binders,” “‘commercially uniform’ means only the degree of uniformity demanded by buyers,” and “‘comparatively small’ is not shown to add anything to the claims, for nowhere are we advised what standard is intended for comparisons.” The Court stated that “[s]o read, the claims are but inaccurate suggestions of the functions of the product....” The Court explained that while the sponginess or porosity contributes to the friability (*i.e.*, dispersibility into dust) of aggregates of carbon black, “[t]he correct degree of friability can be ascertained only by testing the performance of the product in actual processes of manufacture of products of which carbon black is a component.” The Court stated, “The statutory requirement of particularity and distinctness in claims is met only when they clearly distinguish what is claimed from what went before in the art and clearly circumscribe what is foreclosed from future enterprise. ... An invention must be capable of accurate definition, and it must be accurately defined, to be patentable.” Accordingly, the Court found the claims indefinite.

See MPEP 2173.05(g).

**2. *In re Swinehart*, 439 F.2d 210, 169 USPQ 226 (CCPA 1971)**

*Representative Claim (U.S. Application Serial No. 314,952, filed October 9, 1963):*

24. A new composition of matter, ***transparent to infrared rays*** and resistant to thermal shock, the same being a solidified melt of two components present in proportion approximately eutectic, one of said components being BaF<sub>2</sub> and the other being CaF<sub>2</sub>.

*Analysis/Conclusion:* The court found the functional claim language “transparent to infrared rays” not indefinite under § 112, ¶2. The court determined that the record established that prior art compositions were substantially opaque to infrared rays and that applicants produced a composition which is substantially transparent to such rays. The court also determined that “the figures reproduced in the specification indicate that the degree of transparency varies depending on such factors as the conditions employed in producing the crystal, the thickness of the crystal and the particular wave length of the radiation transmitted,” but that “in all cases a substantial amount of infrared radiation is transmitted.” Thus, the court did not read the disclosure as suggesting that the claim covered only certain degrees of transparency and determined that the limits of the claim when read in light of that disclosure were sufficiently clear.

See MPEP 2173.05(g).

**3. *Halliburton Energy Services, Inc., v. M-I LLC*, 514 F.3d 1244, 85 USPQ2d 1654 (Fed. Cir. 2008)**

*Representative Claim (U.S. Patent No. 6,887,832):*

1. A method for conducting a drilling operation in a subterranean formation using a ***fragile gel*** drilling fluid comprising:
  - (a) an invert emulsion base;
  - (b) one or more thinners;
  - (c) one or more emulsifiers; and
  - (d) one or more weighting agents, wherein said operation includes running casing in a borehole.

*Analysis/Conclusion:* Although the term “fragile gel” appears only in the preamble, the claimed drilling fluid was interpreted as being limited to a “fragile gel” because during prosecution the claims were distinguished from prior art fluids by stating, for example, that the claims were “limited to” a “fragile gel” drilling fluid. Two functional definitions were proposed for the term “fragile gel”: (1) the ability of the fluid to transition quickly from gel to liquid, and (2) the ability of the fluid to suspend drill cuttings at rest (*i.e.*, the fluid is being defined “by what it does rather than what it is”). The court held that the term “fragile gel” is not sufficiently definite if construed in accordance with the first definition because a person of ordinary skill in the art could not determine how quickly the gel must transition to a liquid when force is applied and how quickly it must return to a gel when the force is removed, and is not sufficiently definite if construed in accordance with the second definition because nothing in the record suggests what degree of such capability is sufficient. Thus, the court held that the term “fragile gel” is indefinite under § 112, ¶2 because it is ambiguous as to the requisite degree of the fragileness of the gel, the ability of the gel to suspend drill cuttings (*i.e.*, gel strength), and/or some combination of the two.

See MPEP 2173.05(g).

**B. Relative terminology (e.g., terms of degree, subjective terms)**

**1. *In re Marosi*, 710 F.2d 799, 218 USPQ 289 (Fed. Cir. 1983)**

*Representative Claim (U.S. Application Serial No. 45,175, filed June 4, 1979):*

18. A process for the manufacture of a nitrogen-containing crystalline metal silicate having a zeolite structure which comprises:

adding a metal oxide, metal hydroxide, metal sulfate, metal nitrate or hydrated metal oxide and a silicon dioxide source that is essentially free of alkali metal to a 5 to 90% strength aqueous solution of hexamethylenediamine to form a mixture that is essentially free of alkali metal;

stirring the mixture to form a homogeneous gel; and thereafter heating the gel to form the crystalline metal silicate; wherein said metal is selected from the group consisting of aluminum, boron, arsenic, antimony, vanadium, iron and chromium, and

whereby said crystalline metal silicate is essentially free of alkali metal.

*Background:* The claimed invention pertains to the synthesis of zeolites without alkali metal in the reaction mixture. The parties agreed that “the prior art syntheses of zeolitic compounds required, as an essential ingredient, alkali metal compounds,” yet, at the same time, “that there are minute but, nevertheless, measurable quantities of alkali metal (however undesired) in the reagents utilized in [the claimed] synthesis.”

*Analysis/Conclusion:* The court found the claim language “essentially free of alkali metal” not indefinite under § 112, ¶2. The court determined that the disclosure “provided a general guideline and examples sufficient to enable a person of ordinary skill in the art to determine whether a process uses a silicon dioxide source ‘essentially free of alkali metal’ to make a reaction mixture ‘essentially free of alkali metal’ to produce a zeolitic compound ‘essentially free of alkali metal.’” The court was “persuaded that such a person would draw the line between unavoidable impurities in starting materials and essential ingredients.”

See MPEP 2173.05(b).

**2. *Seattle Box Co., Inc. v. Indus. Crating & Packing, Inc.*, 731 F.2d 818, 221 USPQ 568 (Fed. Cir. 1984)**

*Representative Claim (U.S. Patent No. Re. 30,373):*

1. A shipping bundle formed of a plurality of lengths of pipe of a common size, comprising:

a base formed of a first plurality of transverse sleepers located in spaced-apart parallel arrangement;

a tier of pipe lengths resting on said base, adjacent pipe lengths of said tier being separated by blocks in transverse series, each block having opposed concavities substantially embracing the curved sides of said adjacent pipe lengths;

each of said series of blocks being located to stand on one of said sleepers and being of a height substantially equal to or greater than the thickness of the tier of pipe lengths;

a second plurality of sleepers, each traversing said pipe tier in overlying alignment with a sleeper of said first plurality, the sleepers of said second plurality being supported on the series of separating blocks; and

a bundling strap tightly encircling each sleeper of said first plurality, the separating blocks resting thereon, and the respective overlying sleeper.

*Background:* The claimed invention relates to packaging oil pipes, where a tier of pipes are placed across parallel wooden “sleeper” beams, and wooden spacer blocks ensure that adjacent pipes remain separated. To prevent the weight of the upper pipes from crushing the lower pipes, the spacer blocks are made with a height at least equal to the pipe’s diameter such that they absorb most of the weight of the overhead load.

*Analysis/Conclusion:* The court found the claim language “substantially equal to” not indefinite under § 112, ¶2. The court stated, “Definiteness problems often arise when words of degree are used in a claim. That some claim language may not be precise, however, does not automatically render a claim invalid. When a word of degree is used the district court must determine whether the patent’s specification provides some standard for measuring that degree.” In this case, the trial court found that an expert would know the limitations of the claims because the specification clearly sets forth, for example, that the divider blocks are intended to absorb the weight of overhead loads.

See MPEP 2173.05(b).

### **3. *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1 USPQ2d 1081 (Fed. Cir. 1986)**

*Representative Claim (U.S. Patent No. Re. 30,867):*

1. In a wheel chair having a seat portion, a front leg portion, and a rear wheel assembly, the improvement wherein said front leg portion is so dimensioned as to be insertable through the space between the doorframe of an automobile and one of the seats thereof whereby said front leg is placed in support relation to the automobile and will support the seat portion from the automobile in the course of subsequent movement of the wheel chair into the automobile, and the retractor means for assisting the attendant in retracting said rear wheel assembly upwardly independently of any change in the position of the front leg portion with respect to the seat portion while the front leg portion is supported on the automobile and to a position which clears the space beneath the rear end of the chair and permits the chair seat portion and retracted rear wheel assembly to be swung over and set upon said automobile seat.

*Analysis/Conclusion:* The court found the claim language “so dimensioned” not indefinite under § 112, ¶2. The court stated while “[i]t is undisputed that the claims require that one desiring to build and use a travel chair must measure the space between the selected automobile’s doorframe and its seat and then dimension the front legs of the travel chair so they will fit in that particular space in that particular automobile,” witnesses skilled in the art testified “that one of ordinary skill in the art would easily have been able to determine the appropriate dimensions.” The court explained “[t]he phrase ‘so dimensioned’ is as accurate as the subject matter permits, automobiles being of various sizes” and that compliance with the definiteness requirement “does not require that all possible lengths corresponding to the spaces in hundreds of different automobiles be listed” so long as “those of ordinary skill in the art realized that the dimensions could be easily obtained.”

See MPEP 2173.05(b).

**4. Exxon Research and Eng'g Co. v. United States, 265 F.3d 1371, 60 USPQ2D 1272 (Fed. Cir. 2001)**

*Representative Claim (U.S. Patent No. 5,348,982 (“the ’892 patent”)):*

1. A method for optimally operating a large diameter three phase (gas, liquid, solid) slurry bubble column having a diameter greater than 15 cm for Fischer-Tropsch synthesis over a supported cobalt catalyst in which solid particles are fluidized in the liquid phase by bubbles of the gas phase, comprising:

(a) injecting the gas phase into said column at an average gas velocity along said column,  $U_g > 2$  cm/sec, such that the flow regime is in the **substantial absence of slug flow**;

(b) fluidizing the solid supported cobalt catalyst particles of average diameter,  $d_p > 5 \mu\text{m}$ , to the height,  $H > 3\text{m}$ , of the expanded liquid in the column by operating with a catalyst settling velocity,  $U_s$ , and dispersion coefficient,  $D$ , such that

$$0.5 (U_s - U_L) \leq \frac{D}{H}, \text{ where } H > 3 \text{ m}$$

where

$$U_s = \frac{1}{18} d_p^2 \frac{\rho_s - \rho_l}{\mu} g f(C_p), \text{ where } d_p > 5 \mu\text{m}$$

and

(c) maintaining plug flow in said column by operating with a gas phase velocity,  $U_g$ , expanded liquid height,  $H$ , and dispersion coefficient,  $D$ , such that

$$U_g \geq 0.2D/H, \text{ where } H > 3\text{m}, U_g > 2 \text{ cm/sec}$$

wherein

$\rho_s$  = effective density of the particles

$\rho_l$  = density of the liquid

$\mu$  = viscosity of the liquid

$f(C_p)$  = hindered settling function

= volume fraction of solids in the slurry (liquid plus solids)

$U_L$  = liquid velocity along the column

$H$  = height of the expanded liquid in said reactor

$g$  = gravitational constant

$d_p$  = diameter of particles

$m$  = meters.

*Background:* The court explained that “[a] slug is a large gas bubble that forms in a slurry bubble column reactor and extends across the full width of the column” and that “[i]t is understood in the art that slugs may adversely affect reactor performance and efficiency.”

*Analysis/Conclusion:* The court found the claim language “substantial absence of slug flow” not indefinite under § 112, ¶2. The court analyzed the claim language as a term of degree and looked to the patent’s specification to determine whether it provides some standard for measuring that degree.

Specifically, the court found that: “The ’892 patent specification teaches that slug flow should be avoided because it may interfere with reactor operations. It is for that reason that the claims require a substantial absence of slug flow, or substantially zero slug flow. One of skill in the art would understand from the specification that the reason slug flow should be avoided is that it may interfere with reactor efficiency. Whether there is a ‘substantial absence of slug flow’ therefore can be determined with reference to whether reactor efficiency is materially affected. If there is no slug flow or such minimal slug flow that the slug flow has no appreciable impact on reactor efficiency, then there is a ‘substantial absence of slug flow’ within the meaning of the claims. In this setting, as in others, mathematical precision is not required—only a reasonable degree of particularity and definiteness.”

See MPEP 2173.05(b).

**5. *Amgen, Inc. v. Hoechst Marion Roussel, Inc.*, 314 F.3d 1313, 65 USPQ2d 1385 (Fed. Cir. 2003)**

*Representative Claim (U.S. Patent No. 5,547,933):*

1. A non-naturally occurring erythropoietin glycoprotein product having the in vivo biological activity of causing bone marrow cells to increase production of reticulocytes and red blood cells and having **glycosylation which differs** from that of human urinary erythropoietin.

*Analysis/Conclusion:* At issue was whether the claim limitation “having glycosylation which differs from that of human urinary erythropoietin” is indefinite in view of the fact that the glycosylation of human urinary erythropoietin (uEPO) itself varies. The court determined that “one must know what the glycosylation of uEPO is with certainty before one can determine whether the claimed glycoprotein has a glycosylation different from that of uEPO.” Because the specification did not direct those of ordinary skill in the art to a standard by which the appropriate comparison could be made, the court held that the claims of the patent requiring “glycosylation which differs” invalid as indefinite under § 112, ¶2.

See MPEP 2173.05(b).

**6. *Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 75 USPQ2d 1801 (Fed. Cir. 2005)**

*Representative Claim (U.S. Patent No. 6,014,137):*

1. In an electronic kiosk system having a plurality of interactive electronic kiosks for displaying information provided by a plurality of information providers, a method for defining custom interface screens customized for individual kiosks of said plurality and operable to make different assortments of said information available for display at different kiosks of said plurality, said method comprising the steps of:

providing a master database of information from said plurality of information providers, said master database referencing substantially all information content from said providers to be displayed on any of said plurality of kiosks;

providing a plurality of pre-defined interface screen element types, each element type defining a form of element available for presentation on said custom interface screens, wherein each said element type permits limited variation in its on-screen characteristics in conformity with a desired uniform and **aesthetically pleasing** look and feel for said interface screens on all kiosks of said kiosk system,

each element type having a plurality of attributes associated therewith, wherein each said element type and its associated attributes are subject to pre-defined constraints providing element characteristics in conformance with said uniform and **aesthetically pleasing** look and feel for said interface screens, and

wherein said plurality of pre-defined element types includes at least one pre-defined window type, at least one pre-defined button type, and at least one pre-defined multimedia type;

selecting a plurality of elements to be included in a custom interface screen under construction, said plurality of elements being selected from said plurality of pre-defined elements types, said plurality of selected elements including at least one button type;

assigning values to the attributes associated with each of said selected elements consistent with said pre-defined constraints, whereby the aggregate layout of said plurality of selected elements on said interface screen under construction will be **aesthetically pleasing** and functionally operable for effective delivery of information to a kiosk user;

selecting from said master database an assortment of information content deriving from selected ones of said information providers to define kiosk information content for an individual kiosk of said kiosk system;

associating said kiosk information content with at least a portion of said selected elements for said interface screen under construction; and

linking said at least one selected button type element to an action facilitating the viewing of at least portions of said kiosk information content by a kiosk user.

*Analysis/Conclusion:* The court determined that the phrase “aesthetically pleasing” is indefinite under § 112, ¶2 because “no objective definition identifying a standard for determining when an interface screen is ‘aesthetically pleasing’” was provided and that “[i]n the absence of a workable objective standard, ‘aesthetically pleasing’ ... is completely dependent on a person’s subjective opinion.” The court stated that “[t]he scope of claim language cannot depend solely on the unrestrained, subjective opinion of a particular individual purportedly practicing the invention” and that “[s]ome objective standard must be provided in order to allow the public to determine the scope of the claimed invention.” The court further stated, “A purely subjective construction of ‘aesthetically pleasing’ would not notify the public of the patentee’s right to exclude since the meaning of the claim language would depend on the unpredictable vagaries of any one person’s opinion of the aesthetics of interface screens. While beauty is in the eye of the beholder, a claim term, to be definite, requires an objective anchor.”

See MPEP 2173.05(b).

## **7. *Young v. Lumenis, Inc.*, 492 F.3d 1336, 83 USPQ2D 1191 (Fed. Cir. 2007)**

*Representative Claim (U.S. Patent 6,502,579):*

1. A feline onychectomy surgical method using a laser cutting instrument, the method comprising:
  - (a) forming a first circumferential incision in the epidermis **near the edge of the unguis crest** of the claw, thereby severing at least some of the epidermis from the unguis crest;
  - (b) applying cranial traction to the epidermis severed from the unguis crest to displace the distal edge of the epithelium cranially;
  - (c) incising the extensor tendon near its insertion on the unguis crest;
  - (d) incising the synovium of the PII-PIII joint;
  - (e) applying traction to the claw in the palmar direction for disarticulating the

- PII-PIII joint;
- (f) ablating the medial and lateral collateral ligaments;
- (g) incising the digital flexor tendon; and
- (h) incising the subcutaneous tissues of the pad of the second phalanx.

*Analysis/Conclusion:* The court found the claim language “near the edge of the ungal crest” not indefinite under § 112, ¶2. The court first considered the claim language itself and found that it “implies that an incision is made in the epidermis somewhere close to or at the edge of the ungal crest.” The court then referred to several portions of the specification and found that “it is consistent with that understanding of the term.” The court also found that Figure 2 provides a standard for measuring the meaning of the term “near” in that it “shows an example of such an incision ‘near’ the edge of the ungal crest” and “illustrates where the first incision is made in relation to the crest and phalanx.” The court therefore concluded that “[t]he claim language and the specification make clear that the term ‘near’ means close to or at the most distal edge of the ungal crest.”

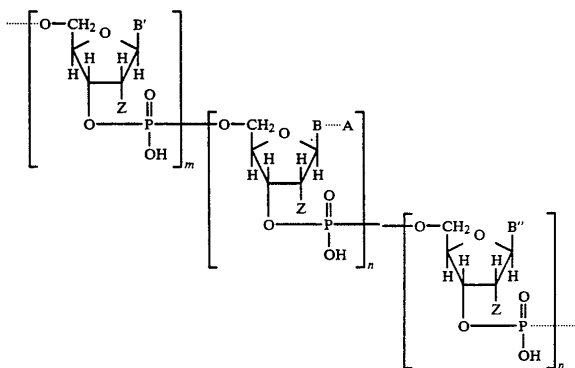
See MPEP 2173.05(b).

**8. *Enzo Biochem, Inc. v. Applera Corp.*, 599 F.3d 1325, 94 USPQ2d 1321 (Fed. Cir. 2010)**

*Representative Claim (U.S. Patent No. 5,328,824):*

1. A method of detecting the presence or absence of a nucleic acid in a sample which comprises the steps of:

- (a) contacting under hybridizable conditions said sample with at least one compound comprising the structure:



wherein each of B' and B'' represents a purine, 7-deazapurine, or pyrimidine moiety covalently bonded to the C<sup>1'</sup>-position of the sugar moiety, provided that whenever B' or B'' is purine or 7-deazapurine, the sugar moiety is attached at the N<sup>9</sup>-position of the purine or 7-deazapurine, and whenever B' or B'' is pyrimidine the sugar moiety is attached at the N<sup>1</sup>-position of the pyrimidine;

wherein B represents 7-deazapurine or pyrimidine moiety covalently bonded to the C<sup>1'</sup>-position of the sugar moiety, provided that whenever B is 7-deazapurine, the sugar moiety is attached at the N<sup>9</sup>-position of the 7-deazapurine, and whenever B is pyrimidine the sugar moiety is attached at the N<sup>1</sup>-position of the pyrimidine;

wherein A comprises at least three carbon atoms and represents at least one component of a signalling moiety capable of producing a detectable signal;

wherein B and A are covalently attached directly or indirectly through a linkage group, said linkage group ***not interfering substantially*** with the characteristic ability of said compound to hybridize with said nucleic acid or of A to be detected;

wherein if B is 7-deazapurine, A is attached to the 7-position thereof, and if B is pyrimidine, A is attached to the 5-position thereof;

wherein m, n and p are integers, provided that m and p are not simultaneously 0 and provided further n is never 0; and

wherein z represents H- or HO-; and

(b) detecting said compound or compounds so as to detect said nucleic acid.

*Background:* The court explained that the patent claims are directed to a compound in which a nitrogeneous base “B” is covalently attached, either directly or through a “linkage group,” to a chemical moiety “A.” The court found that the “linkage group” is not recited in structural terms but, rather, functionally as “not interfering substantially” with hybridization.

*Analysis:* The court examined the intrinsic evidence (*i.e.*, the claims, specification and prosecution history) to determine whether a person of ordinary skill would understand when a linkage group “substantially” interferes with hybridization. The court determined that the claims themselves “provide at least some guidance as to how much interference will be tolerated” because “[a] dependent claim in both patents specifies that the linkage group has a particular structure (-CH=CH-CH<sub>2</sub>-NH-)” and “[a] person of ordinary skill would presume that a structure recited in a dependent claim will perform a function required of that structure in an independent claim.” The court also determined that “[t]he specification provides additional examples of suitable linkage groups, including some criteria for selecting them.” For example, the court explained that the specification provides that “[i]t is even more preferred that the chemical linkage group be derived from a primary amine, and have the structure -CH<sub>2</sub>-NH-, since such linkages are easily formed utilizing any of the well known amine modification reactions.” The court also determined that the specification teaches “that the polynucleotides’ ‘thermal denaturation profiles and hybridization properties’ can be used to measure the degree to which a linkage group interferes with hybridization.” Additionally, the court determined that the prosecution history was helpful because a declaration under 37 C.F.R. § 1.132, submitted during prosecution, listed eight specific linkage groups that were declared as not substantially interfering with hybridization or detection.

*Conclusion:* The court stated that “[b]ecause the intrinsic evidence here provides ‘a general guideline and examples sufficient to enable a person of ordinary skill in the art to determine [the scope of the claims],’” the claims were not indefinite under § 112, ¶2 “even though the construction of the term ‘not interfering substantially’ defines the term without reference to a precise numerical measurement.” The court further stated that “[w]hen deciding whether a particular linkage group is or is not ‘substantially’ interfering with hybridization, a person of ordinary skill would likely look to the thermal denaturation profiles and hybridization properties (including T<sub>m</sub>) of the modified nucleotide, to see whether they fall within the range of exemplary values disclosed in the intrinsic evidence.”

See MPEP 2173.05(b).

**9. *Hearing Components, Inc. v. Shure Inc.*, 600 F.3d 1357, 94 USPQ2d 1385 (Fed. Cir. 2010)**

*Representative Claim (U.S. Patent No. 5,401,920):*

1. For use in connection with a sound transmitting device of the type in which a housing contains a sound transmitting tube having a sound outlet port confronting the ear drum when said device is fitted within a user's ear canal,

a disposable wax guard for mounting over the sound outlet port to prevent cerumen from fouling said outlet port, said wax guard being ***readily installed and replaced by a user***, comprising a thin, flexible membrane that permits a user to position said guard over said outlet port, one side of said membrane being provided with a normally tacky and pressure-sensitive adhesive layer except in that portion adapted to overlie said outlet port, the portion of said guard overlying said outlet port being porous to sound and capable of wax entrapment.

*Analysis/Conclusion:* The court found the claim language “readily installed and replaced by a user” not indefinite under § 112, ¶2. The court determined that although “readily” does not refer to a mathematical measure of degree, the specification in this case supplies some standard for measuring the scope of the phrase. For example, the specification states that one of the advantages of the wax guard is that it “requires no tools for installation or removal.” The specification also states that “[i]t is simple to install, easy to remove, and convenient to replace, even for older persons.” The court determined that the language of those sentences in the specification closely tracks the language of the disputed claim term and, thus, the written description gives a clear example of a wax guard that is “readily installed and replaced by a user”: one that “is inexpensive and requires no tools for installation or removal.”

See MPEP 2173.05(b).

### C. Numerical ranges and amounts

#### 1. *Honeywell Int’l, Inc. v. ITC*, 341 F.3d 1332, 65 USPQ2d 1023 (Fed. Cir. 2003)

*Representative Claim (U.S. Patent No. 5,630,976):*

1. A process for production of a drawn polyethylene terephthalate yarn which translates to a high tenacity dimensionally stable tire cord, comprising:

(A) extruding a molten melt-spinnable polyethylene terephthalate having an intrinsic viscosity of 0.8 or greater through a shaped extrusion orifice having a plurality of openings to form a molten spun yarn,

(B) solidifying the spun yarn gradually by passing the yarn through a solidification zone which comprises (a) a retarded cooling zone and (b) a cooling zone adjacent said retarded cooling zone wherein said yarn is rapidly cooled and solidified in a blown air atmosphere,

(C) withdrawing the solidified yarn at sufficient speed to form a crystalline, partially oriented yarn with a crystallinity of 3 to 13% and a ***melting point elevation of 2° to 10° C.***, and

(D) hot drawing the yarn to a total draw ratio between 1.5/1 and 2.5/1.

*Analysis/Conclusion:* At issue was the definiteness of the claim term “melting point elevation” (MPE). According to claim 1, the polyethylene terephthalate (PET) yarn produced by the claimed process must fall within the specified MPE range recited in step (C). The court determined that a sample of PET yarn must be prepared in order to measure the MPE and, depending upon which sample preparation method is used, the calculated MPE for a given sample can vary greatly. The court found that the intrinsic record fails to resolve the ambiguity with respect to a required sample preparation method because “[t]he claims, written description, and prosecution history do not mention the different sample

































































