

## **CLASS 504, PLANT PROTECTING AND REGULATING COMPOSITIONS**

### **SECTION I - CLASS DEFINITION**

#### **STATEMENT OF CLASS SUBJECT MATTER**

This class provides for compositions for treating living terrestrial and aquatic plants or their habitats for the purpose of stimulating or inhibiting growth, or any regulating action on plant growth, and the processes of using such compositions or compounds, per se, for such purposes which are not more than their mere application to the plant or habitat. The compositions or compounds included in this class will alter the plant growth through a chemical modification of the plant metabolism.

This class also provides for: (1) Seeds coated or impregnated with agricultural chemicals other than fertilizers, e.g., antidotes, plant growth regulators, micro-organisms, fungicides, disinfectants, etc. (2) Processes and their products which are of definite fertilizer value and are also insecticides, fungicides, or deodorants. These patents are cross-referenced to Classes 424 and 514. (3) Antidotal compositions, i.e., compositions which contain compounds capable of protecting cultivated plants from being damaged by herbicidal chemicals without affecting the herbicidal action of said chemicals against the weeds or unwanted plants to be controlled. (4) Soil life extenders, i.e., compositions which contain a herbicide and a compound useful for extending the soil life of said herbicide. (5) Compositions for preserving cut flowers. (6) Compositions for stimulating or increasing the sprouting of seeds, roots, tubers, or bulbs. (7) Compositions for regulating aquatic plants, particularly algae. (8) Compositions for regulating plant growth which use micro-organisms or products derived therefrom.

#### **CLASSIFICATION GUIDELINES FOR THIS CLASS**

In this class the chemical structure of the ingredient disclosed as having a utility set forth in the Statement of Class Subject Matter, above, is used as the primary basis of classification. Processes of using compositions or compounds, per se, and processes of making compositions, not provided for elsewhere are classified in the first appearing subclass providing for the particular active ingredient being employed or prepared.

The subclasses drawn to plural active ingredients include compositions which contain two or more active plant growth regulating agents, e.g., two or more herbicides.

No weight is given to a synergist or potentiator agent in classifying a composition for this class unless the synergist or potentiator agent is also an active plant growth regulator.

A patent claiming a Class 504 active ingredient broadly in terms of its function in combination with a specific adjuvant or carrier has been classified as original in the first appearing subclass providing for any one of the disclosed specific active ingredients and cross-referenced to all other subclasses providing for the remaining disclosed active ingredients.

### **SECTION II - NOTES TO THE CLASS DEFINITION**

- (1) Note. Compounds included within this definition, but not considered organic are hydrocyanic acid, cyanogen, isocyanic acid, cyanamide, dicyanamide, cyanogen halides, isothiocyanic acid, fulminic acid, and metal carbides.

### **SECTION III - LINES WITH OTHER CLASSES AND WITHIN THIS CLASS**

#### **GENERAL GUIDELINES:**

(1) Compositions which are disclosed as having a plurality of functions provided for in different main classes and only a single use, property, or function is claimed, are originally classified in the composition class providing for such claimed use, property, or function and cross-referenced to other classes for disclosed uses, properties, or functions when desirable.

(2) The rules for determining Class placement of the Original Reference (OR) for claimed chemical compositions are set forth in the Class Definition of Class 252 in the section **LINES WITH OTHER CLASSES AND WITHIN THIS CLASS**, subsection **COMPOSITION CLASS SUPERIORITY**, which includes a hierarchical **ORDER OF SUPERIORITY FOR COMPOSITION CLASSES**.

#### **SEARCHING OF FOREIGN PATENTS IN THIS CLASS (504)**

The foreign patents for subclasses 100 and 103-357 of Class 504 have been placed in the International Patent Classification System (in subclass A01N) and will be

searched in that system according to its rules of classification.

#### SECTION IV - REFERENCES TO OTHER CLASSES

##### SEE OR SEARCH CLASS:

- 47, Plant Husbandry, subclass 57.6 for processes of treating the soil and its product (1) which do not involve the application of a specific plant growth regulating composition to terrestrial or aquatic plants or their habitats, or (2) which are more than mere application of a specific composition to the plant or the soil, e.g., include some mechanical manipulation of the plant or soil. Search particularly subclass 57.6 for coated or impregnated seeds not more specifically provided for elsewhere.
- 71, Chemistry: Fertilizers, for compositions having a nutrient or fertilizing effect on plant growth and methods of using such compositions, and for compositions of seeds and fertilizers. Compositions which include a plant stimulant and a fertilizer are classified in Class 504.
- 204, Chemistry: Electrical and Wave Energy, appropriate subclasses for electrical or wave energy methods involving chemical reactions which are caused by more than the mere thermal effects of the electrical or wave energy for the preparation of compounds or elements useful for plant growth regulating compositions.
- 424, Drug, Bio-Affecting and Body Treating Compositions, appropriate subclasses for processes of application of insecticides, fungicides, fumigants, disinfectants, etc., to plants or soil as well as seeds coated with a Class 424 composition wherein the seed functions as a bait material. Compositions which include a plant growth regulator and a biocide are classified in Class 504. If claims are drawn to a "pesticide" composition or method without specifically reciting the nature of the "pest" to be controlled or eradicated, the patent is placed as an original in Class 424 or 514 when only a Class 424 or 514 type of "pest" (e.g., fungi, insect, rodent, etc.) is revealed in the patent disclosure. However, if both Class 504 and Class 424 or 514 types of "pest" are specifically disclosed or if no disclosure is made as to the specific type of pest, the patent is placed in Class 504 as an original and cross-referenced to Class 424 or 514.

- 435, Chemistry: Molecular Biology and Microbiology, for making, separating, or purifying substances by processes that include fermentations; for processes of making or treating living organisms, enzymes, or ferments; and for compositions or apparatus for use in such processes.
- 514, Drug, Bio-Affecting and Body Treating Compositions, appropriate subclasses for processes of application of insecticides, fungicides, fumigants, disinfectants, etc., to plants or soil as well as seeds coated with a Class 514 composition wherein the seed functions as a bait material. Compositions which include a plant growth regulator and a biocide are classified in Class 504. If claims are drawn to a "pesticide" composition or method without specifically reciting the nature of the "pest" to be controlled or eradicated, the patent is placed as an original in Class 424 or 514 when only a Class 424 or 514 type of "pest" (e.g., fungi, insect, rodent, etc.) is revealed in the patent disclosure. However, if both Class 504 and Class 424 or 514 types of "pest" are specifically disclosed or if no disclosure is made as to the specific type of pest, the patent is placed in Class 504 as an original and cross-referenced to Class 424 or 514.
- 516, Colloid Systems and Wetting Agents; Subcombinations Thereof; Processes of Making, Stabilizing, Breaking, or Inhibiting, appropriate subclasses for subject matter relating to: colloid systems (such as sols\*, emulsions, dispersions, foams, aerosols, smokes, gels, or pastes) or wetting agents (such as leveling, penetrating, or spreading); subcombination compositions of colloid systems containing at least an agent specialized and designed for or peculiar to use in making or stabilizing colloid systems; compositions and subcombination compositions specialized and designed for or peculiar to use in breaking (resolving) or inhibiting colloid systems; processes of making the compositions or systems of the class; processes of breaking (resolving) or inhibiting colloid systems; in each instance, when generically claimed or when there is no hierarchically superior provision in the USPC for the specifically claimed art.
- 800, Multicellular Living Organisms and Unmodified Parts Thereof and Related Processes, appropriate subclasses for living multicellular organisms, e.g., plants, etc., and separated or severed parts thereof that have not undergone

any modification or treatment subsequent to their separation, e.g., untreated seeds, etc.

## SECTION V - GLOSSARY

The organic chemical structure terminology used in this class is consistent with that used in the Glossary for Class 532 - Organic Compounds -- Part of the Class 532-570 Series

### ACTIVE

The expression active as used herein denotes a plant growth regulating effect.

### HERBICIDE

The term denotes a compound or composition which adversely affects the growth or the life span of a plant.

### ORGANIC

The term organic denotes compounds containing carbon, which are further characterized by the presence in a molecule thereof of two carbon atoms bonded together; or one atom of carbon bonded to at least one atom of hydrogen or halogen; or one atom of carbon bonded to at least one atom of nitrogen by a single or double bond.

### PLANT

The term plant refers to all physical parts of a plant, including seeds, seedlings, saplings, roots, tubers, stems, stalks, foliage, and fruits.

### PLANT GROWTH

Plant growth includes all phases of development from seed germination to natural or induced cessation of life.

### POTENTIATOR OR SYNERGIST

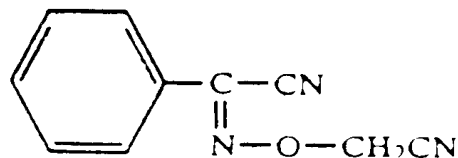
The terms denote an agent (A) which will cooperatively act with an active ingredient for this class (B) to the extent that the total effect (A+B) will be greater than the sum of the two effects taken independently.

### SUBCLASSES

## 100 SEEDS COATED WITH AGRICULTURAL CHEMICALS OTHER THAN FERTILIZERS:

This subclass is indented under the class definition. Products which comprise seeds coated or impregnated with agricultural chemicals other than fertilizers, e.g., antidotes, safeners, plant growth regulators, micro-organisms, fungicides, bactericides, disinfectants, etc.

- (1) Note. An example of an agricultural chemical provided for herein is:



### SEE OR SEARCH CLASS:

- 47, Plant Husbandry, subclass 57.6 for coated seeds not more specifically provided for elsewhere.
- 424, Drug, Bio-Affecting and Body Treating Compositions, for seeds coated or impregnated with a Class 424 composition wherein the seed functions as a bait material, as well as, for processes of treating a seed with a biocide.
- 427, Coating Processes, subclass 4 for processes of coating of seeds, plants, etc., when the coating composition has no affect upon growth character of the plant or when the coating process is more than the mere application of a specific composition to the plant or seed.

## 101 FERTILIZERS WITH INSECTICIDE, FUNGICIDE, DISINFECTANT, OR DEODORANT:

This subclass is indented under the class definition. Products which are of definite fertilizer value and are also insecticides, fungicides, deodorants, or disinfectants.

### SEE OR SEARCH CLASS:

- 424, Drug, Bio-Affecting and Body Treating Compositions, subclasses 76.1+ for deodorant compositions which are

not applied to the living body and which function by destroying the odor-causing organism or by desensitizing the olfactory mechanism.

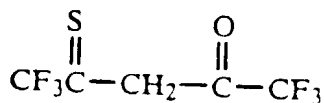
**102 From sewage, human, or animal excrements (e.g., night soil, manure, guano, etc.):**

This subclass is indented under subclass 101. Products in which fertilizer is derived from sewage, human, or animal excrement.

**103 ANTIDOTES (E.G., SAFENERS, ANTAGONISTS, ETC.):**

This subclass is indented under the class definition. Compositions containing antidotes, which are compounds capable of protecting cultivated plants from being damaged by herbicidal chemicals without affecting the herbicidal action of said chemicals against the weeds or unwanted plants to be controlled.

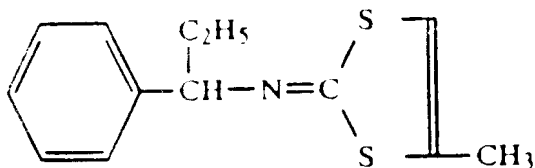
(1) Note. An example of an antidotal compound provided for herein is:



**104 Hetero ring containing antidote:**

This subclass is indented under subclass 103. Compositions wherein the antidotal compound contains a hetero ring.

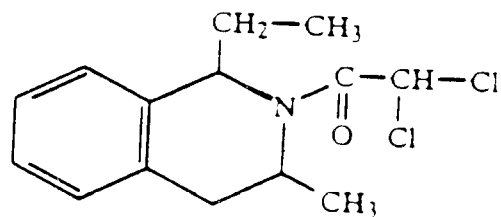
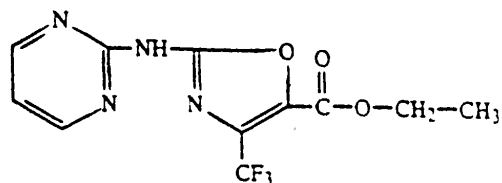
(1) Note. An example of an antidotal compound provided for herein is:



**105 Hetero ring is six-membered including nitrogen:**

This subclass is indented under subclass 104. Compositions in which the hetero ring is six-membered and has nitrogen as a ring member.

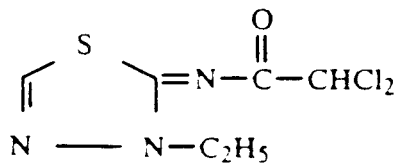
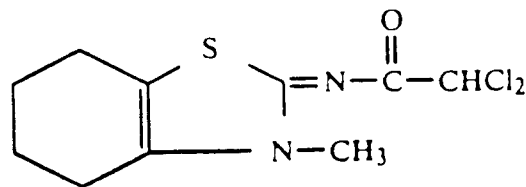
(1) Note. Examples of antidotal compounds provided for herein are:



**106 Hetero ring is five-membered having two or more ring hetero atoms of which at least one is nitrogen (e.g., thiazoles, etc.):**

This subclass is indented under subclass 104. Compositions in which the hetero ring is five-membered and has two or more hetero atoms as ring members, at least one of which is nitrogen.

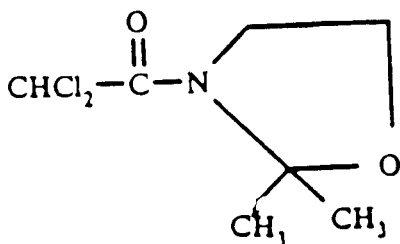
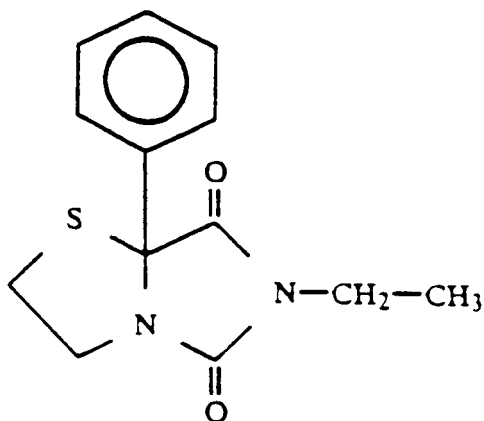
(1) Note. Examples of antidotal compounds provided for herein are:



**107 Having -C(=X)-, wherein X is chalcogen, bonded directly to ring nitrogen of the five-membered hetero ring:**

This subclass is indented under subclass 106. Compositions wherein a -C(=X)- group, in which X is chalcogen (i.e., oxygen, sulfur, selenium, or tellurium), is bonded directly to the ring nitrogen of the hetero ring.

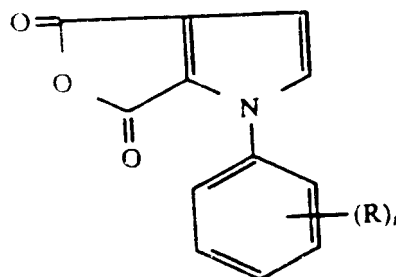
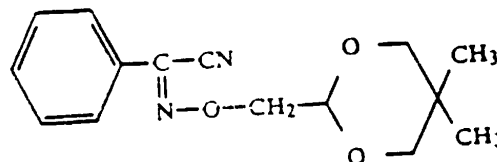
- (1) Note. Examples of antidotal compounds provided for herein are:



**108 Oxygen containing hetero ring:**

This subclass is indented under subclass 104. Compositions wherein the hetero ring has oxygen as a ring member.

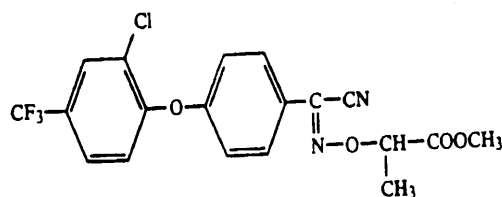
- (1) Note. Examples of antidotal compounds provided for herein are:



**109 Antidote contains cyano or isocyano bonded directly to carbon:**

This subclass is indented under subclass 103. Compositions wherein the antidotal compound contains carbon bonded directly to a cyano (-CN) or isocyano (-NC) group.

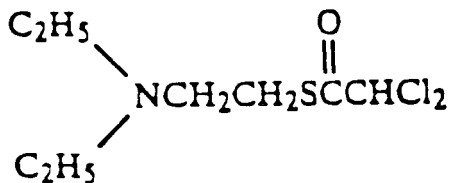
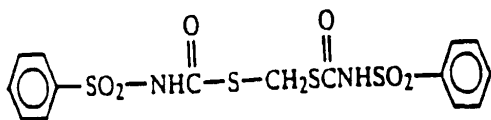
- (1) Note. An example of an antidotal compound provided for herein is:



**110 Antidote contains -C(=X)X-, wherein the X's are the same or diverse chalcogens (e.g., carbamates, thiocarbamates, carboxylic acids, etc.):**

This subclass is indented under subclass 103. Compositions in which the antidotal compound contains a -C(=X)X- group, wherein the X's are the same or diverse chalcogens (i.e., oxygen, sulfur, selenium, or tellurium).

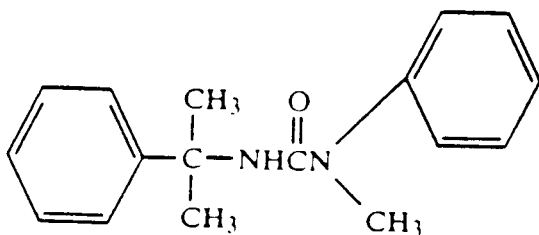
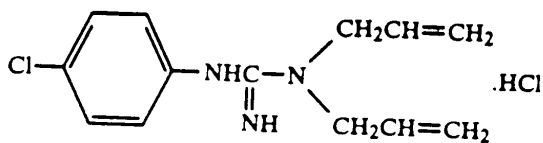
- (1) Note. Examples of antidotal compounds provided for herein are:



- 111 Antidote contains organic nitrogen compound wherein the nitrogen, other than as nitro or nitroso, is attached directly or indirectly to carbon by nonionic bonding:

This subclass is indented under subclass 103. Compositions in which the antidotal compound contains an organic compound wherein nitrogen, other than as nitro or nitroso (-NO<sub>2</sub> or -NO), is attached directly or indirectly to carbon by nonionic bonding

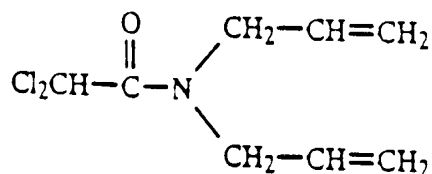
- (1) Note. A nitro or nitroso group may be attached directly or indirectly to carbon by nonionic bonding, provided that a nitrogen which is not part of a nitro or nitroso group is also so attached.
- (2) Note. Examples of antidotal compounds provided for herein are:



- 112 Carboxamides (i.e., R-C(=O)NH<sub>2</sub>, wherein R is hydrogen or carbon, and substitution may be made for the hydrogens on the nitrogen only; e.g., dichloracetamides, etc.):

This subclass is indented under subclass 111. Compositions which contain R-C(=O)NH<sub>2</sub>, wherein R is hydrogen or carbon, and substitution may be made for the hydrogens on the nitrogen only.

- (1) Note. An example of an antidotal compound provided for herein is:



- 113 PLANT GROWTH REGULATORS WITH SOIL LIFE EXTENDERS:

This subclass is indented under the class definition. Compositions which contain a plant growth regulator (e.g., a herbicide) and a compound useful for extending the soil life of said plant growth regulator.

- (1) Note. Soil conditioners are not considered to be soil life extenders.

- 114 COMPOSITIONS FOR PRESERVATION OR MAINTENANCE OF CUT FLOWERS:

This subclass is indented under the class definition. Compositions for maintaining the freshness of flowers that have been severed from a living plant.

SEE OR SEARCH CLASS:

427, Coating Processes, subclass 4 for processes of coating a plant member or animal specimen for ornamental effect or preservation.

- 115 Containing organic nitrogen compounds:

This subclass is indented under subclass 114. Compositions which contain an organic nitrogen compound, i.e., one in which nitrogen is attached directly or indirectly, by nonionic bonding, to carbon of an organic compound.

**116.1 PLANT GROWTH REGULATING COMPOSITIONS (E.G., HERBICIDES, ETC.):**

This subclass is indented under the class definition. Compositions not more specifically provided for elsewhere, for treating growing or living terrestrial or aquatic plants or their habitats for the purpose of stimulating, inhibiting, defoliating, retarding, or killing said plants, and the processes of using said compositions or compounds, per se, for such purposes, which processes are not more than the mere application of the compositions or compounds to the plant or habitat.

- (1) Note. Compositions of this subclass include those compositions which find utility for desuckering plants and sucker control, for activating the germination of seeds, bulbs, tubers, and roots, and for affecting the color of fruit, etc. as well as processes of using the compositions and compounds per se for such purposes.
- (2) Note. Compositions, such as auxins, which alter the plant through a chemical modification of the plant metabolism are provided for herein.
- (3) Note. The terms “mere application” and “mere use”, as employed herein, include such recited process steps as dusting, spraying, injection, wetting, drilling, spreading, etc., and combinations thereof. Limitations relating to amounts, time, or physical forms of the compositions as applied are included herein. For example, treatment with a specific composition “at the imminence of abscission” to prevent abscission is classified with the composition.
- (4) Note. In the indented subclasses, the primary basis of classification is the chemical structure of the claim-recited compound which is disclosed to possess plant growth regulating activity.
- (5) Note. For the purposes of this and related subclasses, the term hetero ring denotes the presence of a ring whose members consist of at least one carbon atom and one or more atoms of the elements taken

from the group consisting of nitrogen, oxygen, sulfur, selenium, and tellurium.

**SEE OR SEARCH CLASS:**

- 47, Plant Husbandry, for (1) methods of culturing plants by means other than using a herbicide or a fertilizer, (2) compositions having only a fertilizer effect, and (3) compositions disclosed as having both stimulating and fertilizing action, wherein the “stimulating” occurs only as a response to the “fertilizing”, and no disclosure relates to the stimulating response except for general statements such as “stimulating and fertilizing” effects.
- 71, Chemistry, Fertilizers, for fertilizing compositions which contain a chelator.
- 424, Drug, Bio-affecting and Body Treating Compositions, for (a) compositions and (b) mere or nominal methods of application of such compositions and of compounds, per se, whose utility is as an insecticide, a fungicide, or an anti-microbial for use on plants.
- 514, Drug, Bio-affecting and Body Treating Compositions, for (a) compositions and (b) mere or nominal methods of application of such compositions and of compounds, per se, whose utility is as an insecticide, a fungicide, or an anti-microbial for use on plants.

**117 Micro-organisms or from micro-organisms (e.g., fermentates, fungi, bacteria, viruses, etc.):**

This subclass is indented under subclass 116.1. Compositions which contain micro-organisms or products derived from micro-organisms or fermentation processes as the active ingredient.

- (1) Note. Products derived from micro-organisms whether their structure is known or not are included herein. Most such products appear to be heterocyclic oxygen compounds.

**SEE OR SEARCH THIS CLASS, SUBCLASS:**

- 292, for compositions containing active six-membered hetero oxygen com-

pounds which are not disclosed as being products of micro-organisms or fermentation processes.

chalcogens (i.e., oxygen, sulfur, selenium, or tellurium) and substitution may be made for hydrogen only.

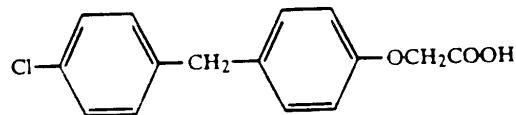
**118 Plural active ingredients:**

This subclass is indented under subclass 116.1. Compositions which contain two or more active plant growth regulating agents.

(1) Note. Examples of compounds provided for herein are:

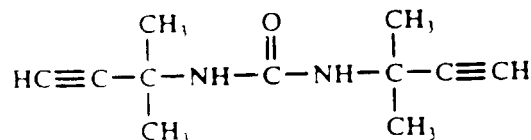
**119 Inorganic active ingredient containing:**

This subclass is indented under subclass 118. Compositions which contain at least one inorganic active element or compound and one or more additional active ingredients.



**120 Inorganic active ingredient contains heavy metal or aluminum:**

This subclass is indented under subclass 119. Compositions wherein the inorganic active ingredient is elemental aluminum, elemental metal having a specific gravity greater than four, or inorganic compounds thereof.



**121 With an organic active ingredient:**

This subclass is indented under subclass 120. Compositions which contain, in addition to the inorganic active ingredient, an organic active compound.

**126 Heavy metal or aluminum containing active ingredient:**

This subclass is indented under subclass 118. Compositions wherein an organic active ingredient contains aluminum or a metal having a specific gravity greater than four.

**122 Inorganic active ingredient contains boron:**

This subclass is indented under subclass 119. Compositions wherein the inorganic active ingredient is elemental boron or an inorganic compound thereof.

**127 Phosphorus containing active ingredient wherein the phosphorus is other than solely as part of an inorganic ion in an addition salt:**

This subclass is indented under subclass 118. Compositions wherein an organic active ingredient contains phosphorus attached directly or indirectly to carbon by nonionic bonding.

**123 With an organic active compound:**

This subclass is indented under subclass 119. Compositions which contain, in addition to the inorganic active ingredient, an organic active compound.

(1) Note. Inorganic phosphorus salts of the organic active ingredient are excluded herefrom and classified with the active organic moiety.

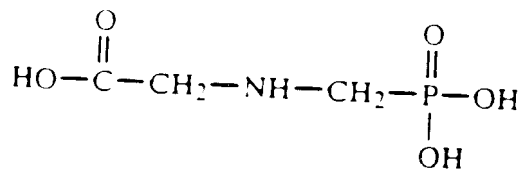
**124 Hetero ring containing:**

Compositions under 123 wherein the organic active compound contains a hetero ring.

(2) Note. An example of a compound provided for herein is:

**125 Containing -C(=X)X- or -C(=X)NH-, wherein the X's are the same or diverse chalcogens and substitution may be made for hydrogen only (e.g., phenoxyacetic acids, ureas, etc.):**

This subclass is indented under subclass 123. Compositions in which the organic active compound contains a -C(=X)X- or -C(=X)NH- group, wherein the X's are the same or diverse





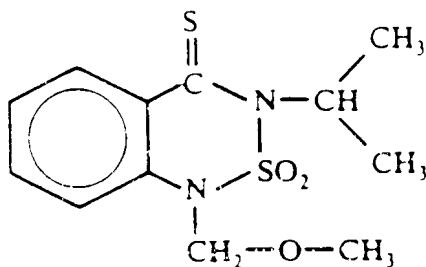
**128 With an active heterocyclic compound:**  
This subclass is indented under subclass 127. Compositions which contain in addition to the organo-phosphorus active ingredient, an active heterocyclic compound.

**129 Hetero ring containing active ingredient:**  
This subclass is indented under subclass 118. Compositions wherein an organic active ingredient contains a hetero ring.

**130 Hetero ring is six-membered including nitrogen:**  
This subclass is indented under subclass 129. Compositions wherein the hetero ring is six-membered and has nitrogen as a ring member.

**131 The hetero ring also contains sulfur (e.g., benzothiadiazinones, etc.):**  
This subclass is indented under subclass 130. Compositions wherein the six-membered hetero ring also has sulfur as a ring member.

(1) Note. An example of a compound provided for herein is:



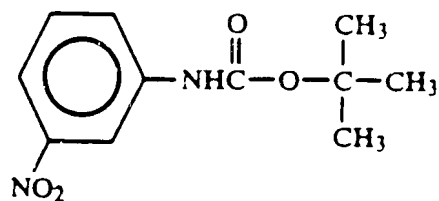
**132 With additional hetero ring active ingredient:**  
This subclass is indented under subclass 131. Compositions which contain, in addition to the active six-membered hetero ring compound, an additional active hetero ring compound.

**133 The hetero ring consists of three nitrogens and three carbons:**  
This subclass is indented under subclass 130. Compositions wherein the six-membered hetero ring consists of three ring nitrogens and three ring carbons.

**134 With additional hetero ring active ingredient:**  
This subclass is indented under subclass 133. Compositions which contain, in addition to the active six-membered hetero ring compound, an additional active hetero ring compound.

**135 With an active ingredient containing -C(=X)X-, wherein the X's are the same or diverse chalcogens (e.g., thiocarbamates, carbamates, carboxylic acids, etc.):**  
This subclass is indented under subclass 133. Compositions which contain, in addition to the active six-membered hetero ring compound, an active compound which has a -C(=X)X- group, wherein the X's are the same or diverse chalcogens (i.e., oxygen, sulfur, selenium, or tellurium).

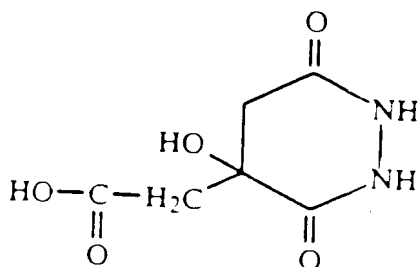
(1) Note. An example of the additional active compound is:



**136 The hetero ring consists of two nitrogens and four carbons:**  
This subclass is indented under subclass 130. Compositions wherein the six-membered hetero ring consists of two ring nitrogens and four ring carbons.

**137 1, 2-diazines (e.g., pyridazines, etc.):**  
This subclass is indented under subclass 136. Compositions wherein the six-membered hetero ring has nitrogens in the 1- and 2-positions and carbons in the remaining four positions.

(1) Note. An example of a compound provided for herein is:



**138 Hetero ring is five-membered including nitrogen:**

This subclass is indented under subclass 129. Compositions wherein the hetero ring is five-membered and has nitrogen as a ring member.

**139 Plural ring nitrogens in the hetero ring:**

This subclass is indented under subclass 138. Compositions wherein the hetero ring contains at least two ring nitrogens.

**140 Oxygen containing hetero ring:**

This subclass is indented under subclass 129. Compositions wherein the hetero ring has oxygen as a ring member.

**141 Cyano, isocyano, cyanate, isocyanate, thiocyanate, or isothiocyanate (i.e., -CN, -NC, -OCN, -NCO, -SCN, or -NCS) containing active ingredient:**

This subclass is indented under subclass 118. Compositions wherein an organic active ingredient contains a cyano (-CN), isocyano (-NC), cyanate (-O-CN), isocyanate (-NCO), thiocyanate (-S-CN), or isothiocyanate (-NCS) group.

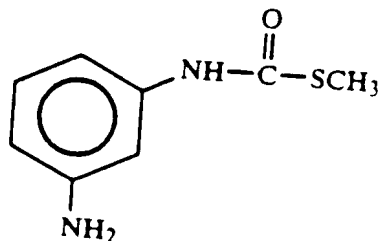
**142 Active ingredient contains -C(=X)X-, wherein the X's are the same or diverse chalcogens:**

This subclass is indented under subclass 118. Compositions in which an organic active ingredient contains a -C(=X)X- group, wherein the X's are the same or diverse chalcogens (i.e., oxygen, sulfur, selenium, or tellurium).

**143 Nitrogen bonded directly to the carbon of the -C(=X)X- group (e.g., carbamates, thiocarbamates, etc.):**

This subclass is indented under subclass 142. Compositions wherein the carbon of the -C(=X)X- group is bonded directly to nitrogen.

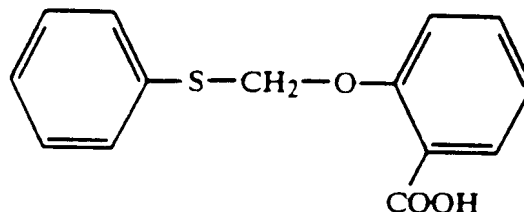
(1) Note. An example of a compound provided for herein is:



**144 Carbocyclic ring bonded directly to the carbon of the -C(=X)X- group (e.g., benzoic acids, etc.):**

This subclass is indented under subclass 142. Compositions wherein the carbon of the -C(=X)X- group is bonded directly to a carbocyclic ring.

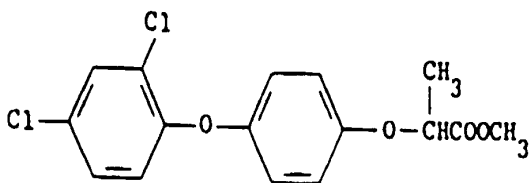
(1) Note. An example of a compound provided for herein is:



**145 Oxygen is bonded directly to a benzene ring and is part of an acyclic chain between the benzene ring and the -C(=O)O- group (e.g., 2,4-dichlorophenoxyacetic acids, naphthoxypropionic acids, etc.):**

This subclass is indented under subclass 142. Compositions in which oxygen is bonded directly to a benzene ring and is also part of an acyclic chain between the benzene ring and the -C(=O)O- group.

(1) Note. An example of a compound provided for herein is:



**146 With an active ingredient containing nitrogen, other than as nitro or nitroso, wherein the nitrogen is attached directly or indirectly to carbon by nonionic bonding:**

This subclass is indented under subclass 145. Compositions which contain an additional active organic compound wherein carbon is attached directly or indirectly to nitrogen, other than as nitro or nitroso (-NO<sub>2</sub> or -NO), by nonionic bonding.

- (1) Note. A nitro or nitroso group may be attached directly or indirectly to carbon by nonionic bonding, provided that a nitrogen which is not part of a nitro or nitroso group is also attached.

**147 Nitrogen or halogen attached indirectly to the carbon of the -C(=X)X- group by acyclic nonionic bonding:**

This subclass is indented under subclass 142. Compositions wherein the carbon of the -C(=X)X- group is attached indirectly to nitrogen or halogen by acyclic nonionic bonding.

**148 Active ingredient contains nitrogen, other than as nitro or nitroso, wherein the nitrogen is attached directly or indirectly to carbon by nonionic bonding:**

This subclass is indented under subclass 118. Compositions wherein an organic active ingredient contains carbon attached directly or indirectly to nitrogen, other than as nitro or nitroso (-NO<sub>2</sub> or -NO), by nonionic bonding.

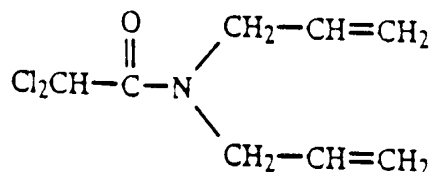
- (1) Note. A nitro or nitroso group may be attached directly or indirectly to carbon by nonionic bonding, provided that a nitrogen which is not part of a nitro or nitroso group is also so attached.

**149 Carboxamides (i.e., R-C(=O)NH<sub>2</sub>, wherein R is hydrogen or carbon, and substitution**

**may be made for the hydrogens on the nitrogen only; e.g., dichloroacetamides, etc.):**

This subclass is indented under subclass 148. Compositions which contain R-C(=O)NH<sub>2</sub>, wherein R is hydrogen or carbon, and substitution may be made for the hydrogens on the nitrogen only.

- (1) Note. An example of an active ingredient provided for herein is:



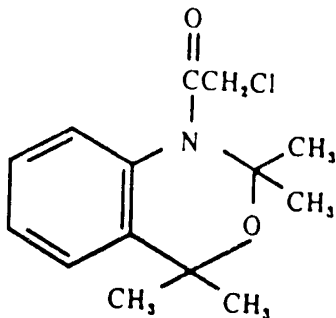
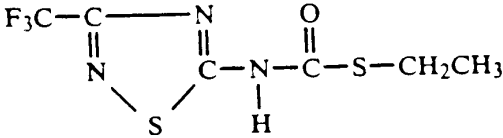
**150 Aquatic plant regulator (e.g., algicides, etc.):**

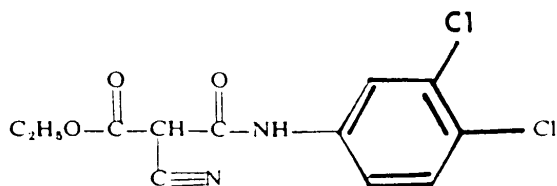
This subclass is indented under subclass 116.1. Compositions which are designed or intended for positively or negatively influencing the life span of aquatic plants.

- (1) Note. Algicides are included herein.
- (2) Note. Patents disclosing the treatment of slime are not included herein unless algae is specifically disclosed to be a component of the slime.
- (3) Note. Compositions intended to be applied to a surface for the prevention or inhibition of algae growth thereon, e.g., antifouling marine coating compositions, are not included herein, but are classified in the appropriate composition class and cross-referenced here if necessary.

**SEE OR SEARCH CLASS:**

- 47, Plant Husbandry, subclass 1.4 for algae culture and subclass 62 for process of fostering plant growth in a nutrient solution.
- 106, Compositions: Coating or Plastic, subclasses 15.05+ for antifouling coating compositions.
- 162, Paper Making and Fiber Liberation, subclass 161 for biocidal processes and products for slime control in paper making.

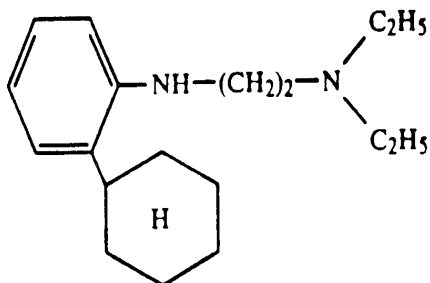
- 210, Liquid Purification or Separation, subclasses 601+, especially 636, 753+, and 764 processes for destroying micro-organisms in a liquid medium which are more than the mere addition of a compound or composition to said liquid.
- 435, Chemistry: Molecular Biology and Microbiology, particularly subclasses 257.1+ for subject matter directed to a composition having utility as an algal culture medium (i.e., media for maintenance, growth, production, etc.) or a technique for preparing or using the same.
- 151 Inorganic active ingredient containing:**  
This subclass is indented under subclass 150. Compositions wherein the active aquatic plant regulating agent is an element or an inorganic compound.
- 152 Heavy metal or aluminum containing active ingredient:**  
This subclass is indented under subclass 150. Compositions wherein the active aquatic plant regulating agent is an organic compound which contains aluminum or a metal having a specific gravity greater than four.
- (1) Note. Arsenic is considered a heavy metal.
- 153 Boron, silicon, or phosphorus containing active ingredient wherein the boron, silicon, or phosphorus is other than solely as part of an inorganic ion in an addition salt:**  
This subclass is indented under subclass 150. Compositions in which the active aquatic plant regulating agent contains an organic compound wherein boron, silicon, or phosphorus is attached directly or indirectly to carbon by nonionic bonding.
- (1) Note. Inorganic boron, silicon, or phosphorus salts of the active aquatic plant regulating agent are excluded herefrom and classified with the active organic moiety.
- 154 Hetero ring containing active ingredient:**  
This subclass is indented under subclass 150. Compositions wherein the active aquatic plant regulating agent contains a hetero ring.
- 155 Hetero ring includes nitrogen:**  
This subclass is indented under subclass 154. Compositions wherein the hetero ring contains nitrogen as a ring member.
- (1) Note. An example of a compound provided for herein is:
- 
- 156 Hetero ring is five-membered (e.g., thiadiazoles, etc.):**  
This subclass is indented under subclass 155. Compositions wherein the hetero ring is five-membered.
- (1) Note. An example of a compound provided for herein is:
- 
- 157 Active ingredient contains -C(=X)X-, wherein the X's are the same or diverse chalcogens (e.g., carbamates, thiocarbamates, carboxylic acids, etc.):**  
This subclass is indented under subclass 150. Compositions in which the active aquatic plant regulating agent contains a -C(=X)X- group, wherein the X's are the same or diverse chalcogens (i.e., oxygen, sulfur, selenium, or tellurium).
- (1) Note. An example of a compound provided for herein is:



- 158** Active ingredient contains nitrogen, other than as nitro or nitroso, wherein the nitrogen is attached directly or indirectly to carbon by nonionic bonding:

This subclass is indented under subclass 150. Compositions in which the active aquatic plant regulating agent contains an organic compound wherein carbon is attached directly or indirectly to nitrogen, other than as nitro or nitroso (-NO<sub>2</sub> or -NO), by nonionic bonding.

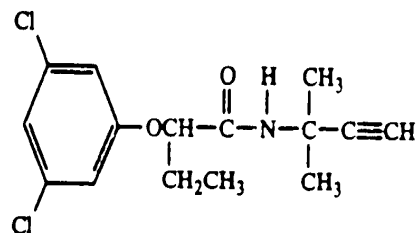
- (1) Note. A nitro or nitroso group may be attached directly or indirectly to carbon by nonionic bonding, provided that a nitrogen which is not part of a nitro or nitroso group is also so attached.
- (2) Note. An example of a compound provided for herein is:



- 159** Having -C(=X)-, wherein X is chalcogen, bonded directly to the nitrogen (e.g., carboxamides, etc.):

This subclass is indented under subclass 158. Compositions which contain a -C(=X)- group, wherein X is chalcogen (i.e., oxygen, sulfur, selenium, or tellurium), bonded directly to the nitrogen.

- (1) Note. An example of a compound provided for herein is:



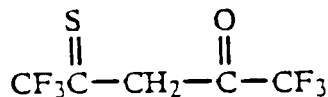
- 160** Chalcogen attached directly or indirectly to the nitrogen by nonionic bonding:

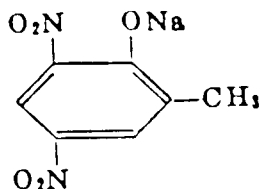
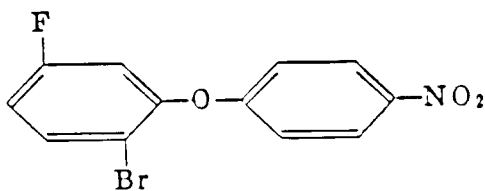
This subclass is indented under subclass 158. Compositions wherein chalcogen (i.e., oxygen, sulfur, selenium, or tellurium) is attached directly or indirectly to the nitrogen by nonionic bonding.

- 161** Active ingredient contains a ketone, aldehyde, ether, or hydroxy group, wherein the H of the hydroxy group may be replaced by a substituted or unsubstituted ammonium or a Group IA or IIA light metal:

This subclass is indented under subclass 150. Compositions in which the active aquatic plant regulating agent contains a -C(=O)- group, a -HCH-O-HCH- group, or an -OH group, wherein substitution may be made for hydrogen only and the hydrogen of the -OH group may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal.

- (1) Note. Examples of compounds provided for herein are:



**162 Abscission agent, defoliant, or desiccant:**

This subclass is indented under subclass 116.1. Compositions which are designed or intended for facilitating or causing fruit, blossom, or leaf drop, or for desiccating a living plant, e.g., premature drying.

**163 Inorganic active ingredient containing:**

This subclass is indented under subclass 162. Compositions wherein the active abscission, defoliant, or desiccant agent is an element or an inorganic compound.

**164 Boron, silicon, heavy metal, or aluminum containing active ingredient:**

This subclass is indented under subclass 162. Compositions wherein the active abscission, defoliant, or desiccant agent is an organic compound which contains boron, silicon, aluminum, or a metal having a specific gravity greater than four.

(1) Note. Arsenic is considered a heavy metal.

**165 Phosphorus containing active ingredient wherein the phosphorus is other than solely as part of an inorganic ion in an addition salt:**

This subclass is indented under subclass 162. Compositions in which the active abscission, defoliant, or desiccant agent contains an organic compound wherein phosphorus is attached directly or indirectly to carbon by nonionic bonding.

(1) Note. Inorganic phosphorus salts of the active abscission, defoliant, or desiccant agent are excluded herefrom and classified with the active organic moiety.

**166 Hetero ring containing active ingredient:**

This subclass is indented under subclass 162. Compositions wherein the active abscission, defoliant, or desiccant agent contains a hetero ring.

**167 Hetero ring is six-membered including nitrogen:**

This subclass is indented under subclass 166. Compositions wherein the hetero ring is six-membered and has nitrogen as a ring member.

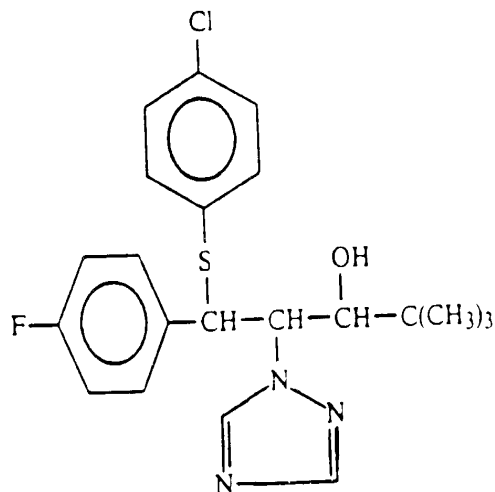
**168 Plural ring nitrogens in the hetero ring:**

This subclass is indented under subclass 167. Compositions wherein the hetero ring contains at least two ring nitrogens.

**169 Hetero ring is five-membered having two or more ring hetero atoms of which at least one is nitrogen:**

This subclass is indented under subclass 166. Compositions in which the hetero ring is five-membered and has two or more hetero atoms as ring members, at least one of which is nitrogen.

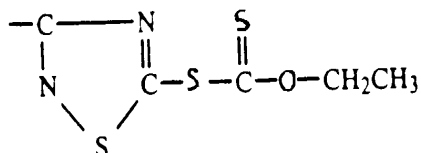
(1) Note. An example of a compound provided for herein is:



**170 Ring chalcogen in the hetero ring:**

This subclass is indented under subclass 169. Compositions wherein the hetero ring also has chalcogen as a ring member.

- (1) Note. An example of a compound provided for herein is:

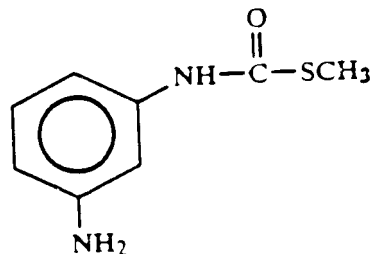
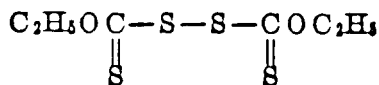
**171 Active ingredient contains -C(=X)X-, wherein the X's are the same or diverse chalcogens:**

This subclass is indented under subclass 162. Compositions in which the active abscission, defoliant, or desiccant agent contains a -C(=X)X- group, wherein the X's are the same or diverse chalcogens (i.e., oxygen, sulfur, selenium, or tellurium).

**172 Nitrogen or additional chalcogen bonded directly to the carbon of the -C(=X)X- group (e.g., thiocarbamates, carbamates, xanthates, etc.):**

This subclass is indented under subclass 171. Compositions wherein the carbon of the -C(=X)X- group is bonded directly to nitrogen or an additional chalcogen.

- (1) Note. Examples of compounds provided for herein are:

**173 Active ingredient contains nitrogen, other than as nitro or nitroso, wherein the nitrogen is attached directly or indirectly to carbon by nonionic bonding:**

This subclass is indented under subclass 162. Compositions in which the active abscission, defoliant, or desiccant agent contains an organic compound wherein carbon is attached directly or indirectly to nitrogen, other than as nitro or nitroso (-NO<sub>2</sub> or -NO), by nonionic bonding.

- (1) Note. A nitro or nitroso group may be attached directly or indirectly to carbon by nonionic bonding, provided that a nitrogen which is not part of a nitro or nitroso group is also so attached.

**174 Stunting or dwarfing agent:**

This subclass is indented under subclass 116.1. Compositions which are designed or intended for retarding, suppressing, or inhibiting the rate of growth or size, particularly the height, of the plant.

**175 Phosphorus containing active ingredient wherein the phosphorus is attached directly or indirectly to carbon by nonionic bonding:**

This subclass is indented under subclass 174. Compositions wherein the active stunting or dwarfing agent contains carbon attached directly or indirectly to phosphorus by nonionic bonding.

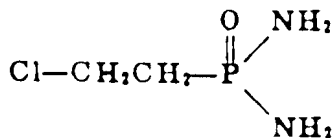
- (1) Salts of an organic active stunting or dwarfing agent with an inorganic phosphorus compound are classified with the active organic moiety.

- 176 Hetero ring containing active ingredient:**  
This subclass is indented under subclass 174. Compositions wherein the active stunting or dwarfing agent contains a hetero ring.
- 177 Hetero ring is six-membered including nitrogen:**  
This subclass is indented under subclass 176. Compositions wherein the hetero ring is six-membered and has nitrogen as a ring member.
- 178 Chalcogen, nitrogen, or -C(=X)-, wherein X is chalcogen, bonded directly to ring carbon of the six-membered hetero ring:**  
This subclass is indented under subclass 177. Compositions in which chalcogen (i.e., oxygen, sulfur, selenium, or tellurium), nitrogen, or -C(=X)-, wherein X is chalcogen, is bonded directly to a ring carbon of the six-membered hetero ring.
- 179 Hetero ring is five-membered including nitrogen:**  
This subclass is indented under subclass 176. Compositions wherein the hetero ring is five-membered and has nitrogen as a ring member.
- 180 Plural ring nitrogens in the hetero ring:**  
This subclass is indented under subclass 179. Compositions wherein the hetero ring contains at least two ring nitrogens.
- 181 Oxygen attached indirectly to the five-membered hetero ring by acyclic nonionic bonding:**  
This subclass is indented under subclass 180. Compositions wherein the five-membered hetero ring is attached indirectly to oxygen by acyclic nonionic bonding.
- 182 Active ingredient contains -C(=X) X-, wherein the X's are the same or diverse chalcogens:**  
This subclass is indented under subclass 174. Compositions wherein the active stunting or dwarfing agent contains a -C(=X) X- group, where the X's are the same or diverse chalcogens (i.e., oxygen, sulfur, selenium, or tellurium).
- 183 Active ingredient contains organic nitrogen, other than as nitro or nitroso, wherein the nitrogen is attached directly or indirectly to carbon by nonionic bonding:**  
This subclass is indented under subclass 174. Compositions in which the active stunting or dwarfing agent contains an organic compound wherein carbon is attached directly or indirectly to nitrogen, other than as nitro or nitroso (-NO<sub>2</sub> or -NO), by nonionic bonding.
- (1) Note. A nitro or nitroso group may be attached directly or indirectly to carbon by nonionic bonding, provided that a nitrogen which is not part of a nitro or nitroso group is also attached.
- 184 Desuckering or sucker control agent:**  
This subclass is indented under subclass 116.1. Compositions containing a desuckering or sucker control agent which inhibits, retards, destroys, or removes sucker growth from a living plant.
- 185 Hetero ring containing active ingredient:**  
This subclass is indented under subclass 184. Compositions wherein the active desuckering or sucker control agent contains a hetero ring.
- 186 Active ingredient contains organic nitrogen, other than as nitro or nitroso, wherein the nitrogen is attached directly or indirectly to carbon by nonionic bonding:**  
This subclass is indented under subclass 184. Compositions in which the active desuckering or sucker control agent contains an organic compound wherein carbon is attached directly or indirectly to nitrogen, other than as nitro or nitroso (-NO<sub>2</sub> or -NO), by nonionic bonding.
- (1) Note. A nitro or nitroso group may be attached directly or indirectly to carbon by nonionic bonding, provided that a nitrogen which is not part of a nitro or nitroso group is also so attached.
- 187 Inorganic active ingredient which contains boron, silicon, phosphorus, heavy metal, or aluminum:**  
This subclass is indented under subclass 116.1. Compositions wherein an inorganic active ingredient contains elemental boron, silicon, phosphorus, aluminum, or metal having a specific gravity greater than four, or an inorganic compound of one of these elements.



- 188 **Inorganic active ingredient is elemental nitrogen, elemental sulfur, or is a compound of nitrogen or sulfur:**  
This subclass is indented under subclass 116.1. Compositions wherein an inorganic active ingredient is elemental nitrogen, elemental sulfur, or is a compound of nitrogen or sulfur.
- 189 **Organic active compound containing:**  
This subclass is indented under subclass 116.1. Compositions containing an organic compound as an active plant growth regulating agent.
- (1) Note. Included herein are organic substances of unknown constitution.
- 190 **Heavy metal or aluminum containing:**  
This subclass is indented under subclass 189. Compositions wherein the organic active compound contains aluminum or a metal having a specific gravity greater than four.
- (1) Note. Arsenic is considered a heavy metal.
- 191 **Hetero ring containing:**  
This subclass is indented under subclass 190. Compositions which contain a hetero ring.
- 192 **Group IV or V heavy metal (e.g., Sn, As, Ti, etc.):**  
This subclass is indented under subclass 190. Compositions wherein the heavy metal is germanium, tin, lead, titanium, zirconium, hafnium, arsenic, antimony, bismuth, vanadium, niobium, or tantalum.
- 193 **Boron or silicon containing:**  
This subclass is indented under subclass 189. Compositions wherein the organic active compound contains boron or silicon.
- 194 **Phosphorus containing wherein the phosphorus is other than solely as part of an inorganic ion in an addition salt:**  
This subclass is indented under subclass 189. Compositions wherein the organic active compound contains phosphorus attached directly or indirectly to carbon by nonionic bonding.
- (1) Note. Salts of the organic active compound with an inorganic phosphorus compound are classified with the active organic moiety.
- 195 **Hetero ring containing:**  
This subclass is indented under subclass 194. Compositions which contain a hetero ring.
- 196 **Ring chalcogen in the hetero ring (e.g., morpholines, etc.):**  
This subclass is indented under subclass 195. Compositions wherein the hetero ring has chalcogen as a ring member.
- (1) Note. An example of a compound provided for herein is:
- 
- 197 **Plural ring nitrogens in the hetero ring:**  
This subclass is indented under subclass 195. Compositions wherein the hetero ring contains at least two ring nitrogens.
- 198 **Having -C(=X)-, wherein X is chalcogen, bonded directly to the phosphorus:**  
This subclass is indented under subclass 194. Compositions wherein the phosphorus is bonded directly to a -C(=X)- group, wherein X is chalcogen (i.e., oxygen, sulfur, selenium, or tellurium).
- 199 **Nitrogen bonded directly to the phosphorus:**  
This subclass is indented under subclass 194. Compositions wherein the phosphorus is bonded directly to nitrogen.
- 200 **Plural nitrogens bonded directly to the phosphorus:**  
This subclass is indented under subclass 199. Compositions wherein phosphorus is bonded directly to two or more nitrogens.

- (1) Note. An example of a compound provided for herein is:



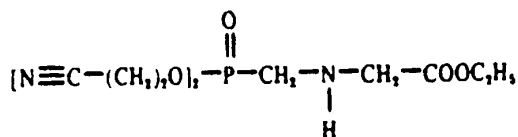
**201 Nitrogen attached indirectly to the phosphorus by acyclic nonionic bonding:**

This subclass is indented under subclass 194. Compositions wherein the phosphorus is attached indirectly to nitrogen by acyclic nonionic bonding.

**202 The nitrogen is part of a cyano or isocyano group:**

This subclass is indented under subclass 201. Compositions in which the nitrogen is part of a cyano (-CN) or isocyano (-NC) group.

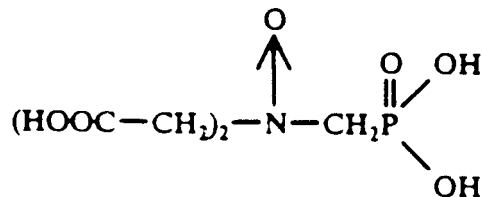
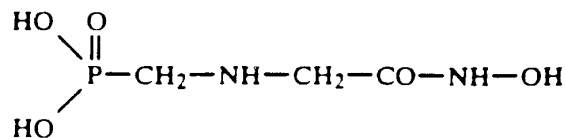
- (1) Note. An example of a compound provided for herein is:



**203 Nitrogen or chalcogen bonded directly to the nitrogen:**

This subclass is indented under subclass 201. Compositions wherein the nitrogen is bonded directly to nitrogen or chalcogen (i.e., oxygen, sulfur, selenium, or tellurium).

- (1) Note. Examples of compounds provided for herein are:



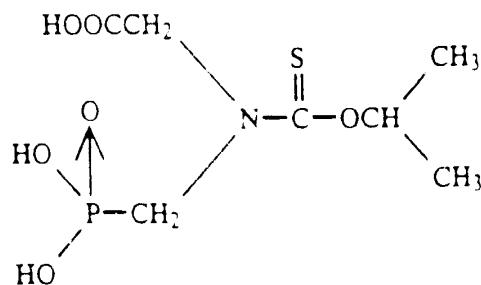
**204 Having -C(=X)-, wherein X is chalcogen, bonded directly to the nitrogen:**

This subclass is indented under subclass 201. Compositions which contain a -C(=X)- group, wherein X is chalcogen (i.e., oxygen, sulfur, selenium, or tellurium), bonded directly to the nitrogen.

**205 Additional -C(=X)- or additional nitrogen attached indirectly to the phosphorus by acyclic nonionic bonding:**

This subclass is indented under subclass 204. Compositions wherein the phosphorus is attached indirectly to an additional -C(=X)-group or an additional nitrogen by acyclic nonionic bonding.

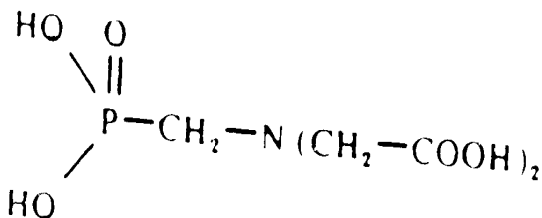
- (1) Note. An example of a compound provided for herein is:



**206** Containing  $-C(=X)X-$ , wherein the X's are the same or diverse chalcogens (e.g., N-phosphonomethylglycines, etc.):

This subclass is indented under subclass 201. Compositions which contain a  $-C(=X)X-$  group, wherein the X's are the same or diverse chalcogens (i.e., oxygen, sulfur, selenium, or tellurium).

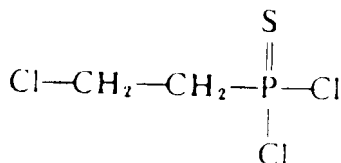
- (1) Note. An example of a compound provided for herein is:



**207** Carbon bonded directly to the phosphorus:  
This subclass is indented under subclass 194. Compositions wherein the phosphorus is bonded directly to carbon.

**208** Halogen attached indirectly to the phosphorus by acyclic nonionic bonding:  
This subclass is indented under subclass 207. Compositions wherein the phosphorus is attached indirectly to halogen by acyclic nonionic bonding.

- (1) Note. An example of a compound provided for herein is:



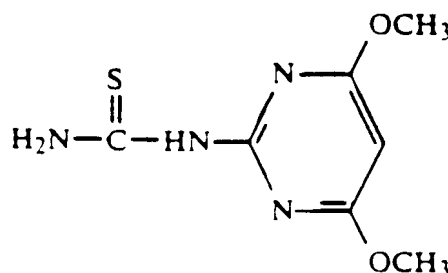
**209** Hetero ring containing:  
This subclass is indented under subclass 189. Compositions wherein the organic active compound contains a hetero ring.

**210** Acyclic urea or thiourea bonded directly to ring carbon of the hetero ring (i.e., HNH-

$C(=X)-NH-$ , wherein X is sulfur or oxygen and substitution may be made for hydrogen only):

This subclass is indented under subclass 209. Compositions in which a HNH- $C(=X)-NH-$  group, wherein X is sulfur or oxygen and substitution may be made for hydrogen only, is bonded directly to a ring carbon of the hetero ring.

- (1) Note. Isoureas, isothiureas, pseudoureas, and pseudothiureas are not provided for in this subclass.  
(2) Note. An example of a compound provided for herein is:

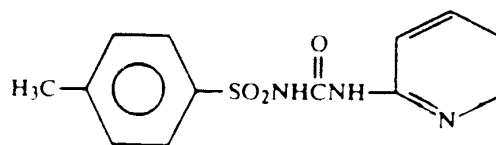


- (3) Note. The acyclic urea or thiourea may itself be substituted by cyclic substituents.

**211** Sulfonyl bonded directly to the urea or thiourea nitrogen (e.g., N-phenylsulfonyl-N'-pyridinylureas, etc.):

This subclass is indented under subclass 210. Compositions wherein the urea or thiourea nitrogen is bonded directly to a sulfonyl,  $-S(=O)-$ , group.

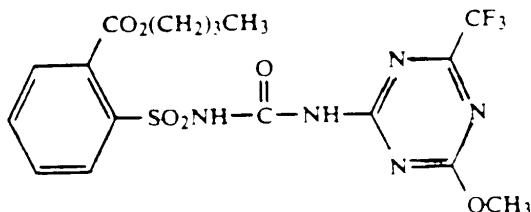
- (1) Note. An example of a compound provided for herein is:



**212 The hetero ring consists of three nitrogens and three carbons:**

This subclass is indented under subclass 211. Compositions wherein the hetero ring consists of three ring nitrogens and three ring carbons.

- (1) Note. An example of a compound provided for herein is:

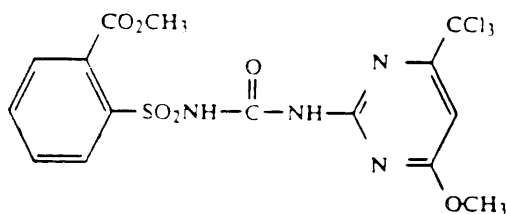
**213 Additional hetero ring containing:**

This subclass is indented under subclass 212. Compositions which contain an additional hetero ring.

**214 The hetero ring consists of two nitrogens and four carbons:**

This subclass is indented under subclass 211. Compositions wherein the hetero ring consists of two ring nitrogens and four ring carbons.

- (1) Note. An example of a compound provided for herein is:

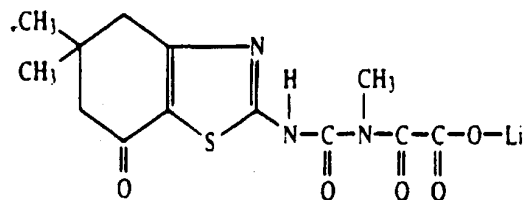
**215 Additional hetero ring containing:**

This subclass is indented under subclass 214. Compositions which contain an additional hetero ring.

**216 The hetero ring is five-membered including nitrogen:**

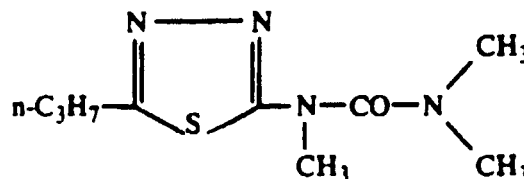
This subclass is indented under subclass 210. Compositions wherein the hetero ring is five-membered and has nitrogen as a ring member.

- (1) Note. An example of a compound provided for herein is:

**217 Plural ring nitrogens and a single ring chalcogen in the hetero ring (e.g., 1,3,4-thiadiazoles, etc.):**

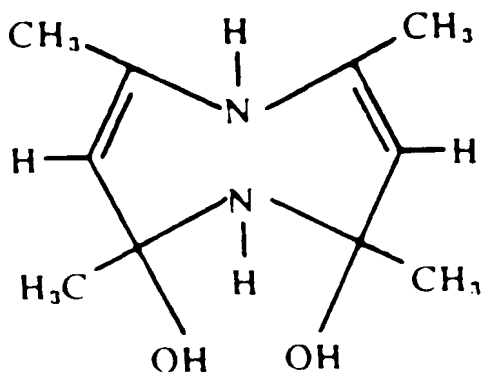
This subclass is indented under subclass 216. Compositions wherein the five-membered hetero ring has at least two ring nitrogens and only one ring chalcogen (i.e., oxygen, sulfur, selenium, or tellurium) as ring members.

- (1) Note. An example of a compound provided for herein is:

**218 Hetero ring contains at least seven members including nitrogen:**

This subclass is indented under subclass 209. Compositions which contain a hetero ring having at least seven ring members of which one or more is nitrogen.

- (1) Note. An example of a compound provided for herein is :



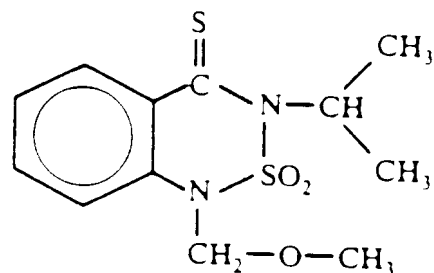
**219 Additional hetero ring containing:**  
This subclass is indented under subclass 218. Compositions which contain an additional hetero ring.

**220 Having -C(=X)-, wherein X is chalcogen, bonded directly to ring nitrogen of the hetero ring:**  
This subclass is indented under subclass 218. Compositions in which -C(=X)-, wherein X is chalcogen (i.e., oxygen, sulfur, selenium, or tellurium), is bonded directly to a ring nitrogen.

**221 Hetero ring is six-membered including nitrogen and sulfur:**  
This subclass is indented under subclass 209. Compositions wherein the hetero ring is six-membered and has nitrogen, sulfur, and carbon as ring members.

**222 Plural ring nitrogens in the hetero ring (e.g., thiadiazines, etc.):**  
This subclass is indented under subclass 221. Compositions wherein the hetero ring contains at least two ring nitrogens.

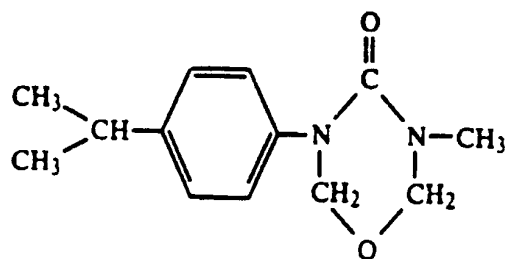
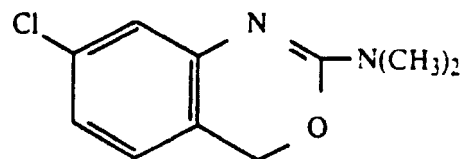
(1) Note. An example of a compound provided for herein is:



**223 Hetero ring is six-membered including nitrogen and oxygen:**

This subclass is indented under subclass 209. Compositions wherein the hetero ring is six-membered and has nitrogen, oxygen, and carbon as ring members.

(1) Note. Examples of compounds provided for herein are

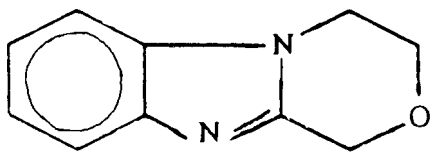


**224 1, 4-oxazines (including hydrogenated):**  
This subclass is indented under subclass 223. Compositions wherein the six-membered hetero ring has oxygen in the 1-position, nitrogen in the 4-position, and carbons in the remaining four positions.

**225 Additional hetero ring containing:**

This subclass is indented under subclass 224. Compositions which contain an additional hetero ring.

- (1) Note. An example of a compound provided for herein is :

**226 Nitrogen or -C(=X)-, wherein X is chalogen, bonded directly to ring nitrogen of the oxazine ring:**

This subclass is indented under subclass 224. Compositions in which nitrogen or -C(=X)-, wherein X is chalcogen (i.e., oxygen, sulfur, selenium, or tellurium), is bonded directly to ring nitrogen of the oxazine ring.

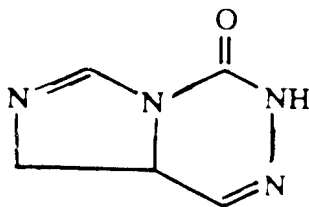
**227 Hetero ring is six-membered consisting of three nitrogens and three carbons:**

This subclass is indented under subclass 209. Compositions which contain a hetero ring consisting of three ring nitrogens and three ring carbons.

**228 Polycyclo ring system having the six-membered hetero ring as one of the cyclos:**

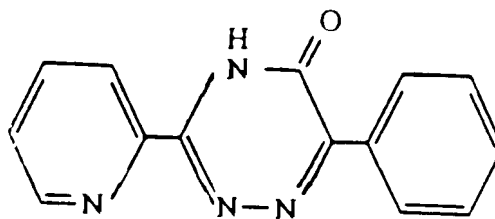
This subclass is indented under subclass 227. Compositions wherein the hetero ring is one of the cyclos of a polycyclo ring system.

- (1) Note. An example of a compound provided for herein is:

**229 Asymmetrical (e.g., 1, 2, 4-triazines, etc.):**

This subclass is indented under subclass 227. Compositions in which two of the ring nitrogens of the six-membered hetero ring are bonded directly to each other.

- (1) Note. An example of a compound provided for herein is :

**230 Additional hetero ring containing:**

This subclass is indented under subclass 227. Compositions which contain an additional hetero ring.

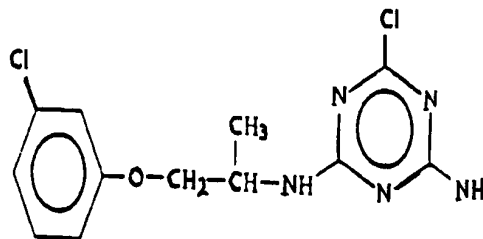
**231 Nitrogen bonded directly to ring carbon of the six-membered hetero ring:**

This subclass is indented under subclass 227. Compositions wherein nitrogen is bonded directly to a ring carbon of the six-membered hetero ring.

**232 Plural nitrogens bonded directly to ring carbons of the six-membered hetero ring:**

This subclass is indented under subclass 231. Compositions wherein at least two nitrogens are bonded directly to ring carbons of the six-membered hetero ring.

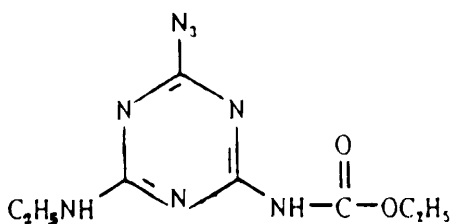
- (1) Note. An example of a compound provided for herein is:



**233 Chalcogen, -C(=X)-, wherein X is chalcogen, or cycloalkyl bonded directly to one of the nitrogens:**

This subclass is indented under subclass 232. Compositions in which chalcogen (i.e., oxygen, sulfur, selenium, or tellurium), -C(=X)-, wherein X is chalcogen, or cycloalkyl is bonded directly to one of the nitrogens.

- (1) Note. An example of a compound provided for herein is:



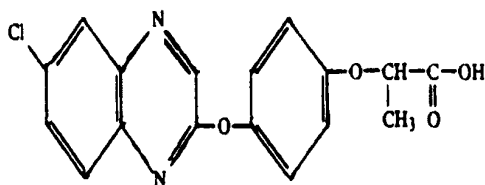
**234 The nitrogens are further bonded to hydrogen or hydrocarbonyl only:**

This subclass is indented under subclass 232. Compositions wherein only hydrogen or hydrocarbon radicals can satisfy the remaining valences of the nitrogens.

**235 Hetero ring is six-membered consisting of two nitrogens and four carbons (e.g., 1, 4-diazines, etc.):**

This subclass is indented under subclass 209. Compositions which contain a six-membered hetero ring consisting of two ring nitrogens and four ring carbons.

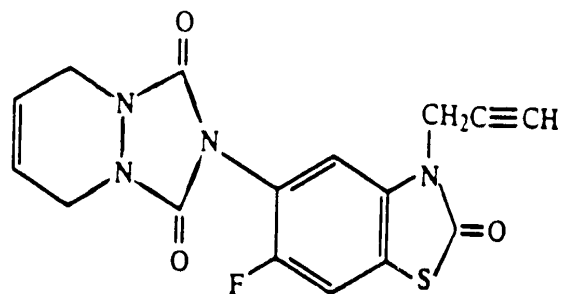
- (1) Note. An example of a compound provided for herein is:



**236 1, 2-diazines (including hydrogenated):**

This subclass is indented under subclass 235. Compositions wherein the six-membered hetero ring has nitrogens in the 1- and 2-positions, and carbons in the remaining four positions.

- (1) Note. An example of a compound provided for herein is:



**237 Nitrogen attached directly to the diazine ring by nonionic bonding:**

This subclass is indented under subclass 236. Compositions wherein the diazine ring is attached directly to nitrogen by nonionic bonding.

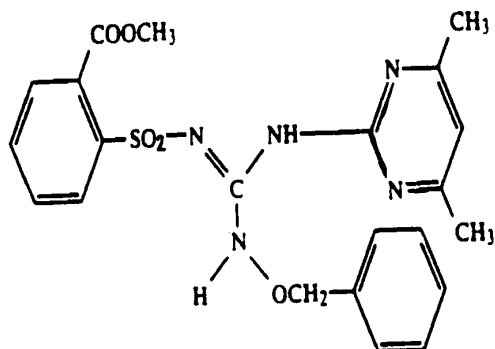
**238 Chalcogen bonded directly to ring carbon of the diazine ring:**

This subclass is indented under subclass 236. Compositions wherein chalcogen (i.e., oxygen, sulfur, selenium, or tellurium) is bonded directly to a ring carbon of the diazine ring.

**239 1, 3-diazines (including hydrogenated):**

This subclass is indented under subclass 235. Compositions wherein the six-membered hetero ring has nitrogens in the 1- and 3-positions, and carbons in the remaining four positions.

- (1) Note. An example of a compound provided for herein is:



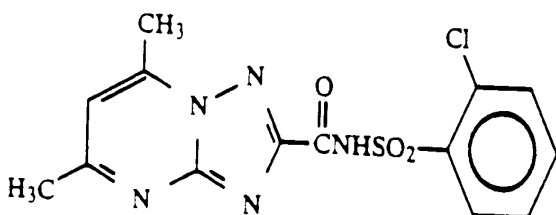
**240 Polycyclo ring system having the diazine ring as one of the cyclos:**

This subclass is indented under subclass 239. Compositions wherein the diazine ring is one of the cyclos of a polycyclo ring system.

**241 Three or more ring hetero atoms in the polycyclo ring system:**

This subclass is indented under subclass 240. Compositions wherein the polycyclo ring system includes at least one ring hetero atom in addition to the two ring nitrogens of the diazine ring.

(1) Note. An example of a compound provided for herein is:



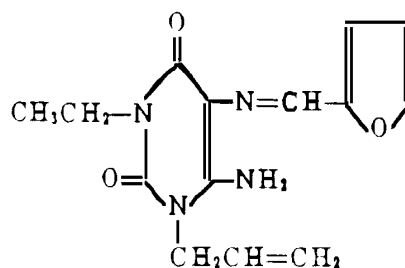
**242 Chalcogen bonded directly to ring carbon of the diazine ring:**

This subclass is indented under subclass 239. Compositions wherein chalcogen (i.e., oxygen, sulfur, selenium, or tellurium) is bonded directly to a ring carbon of the diazine ring.

**243 Plural chalcogens bonded directly to ring carbons of the diazine ring (e.g., uracils, etc.):**

This subclass is indented under subclass 242. Compositions wherein at least two chalcogens (i.e., oxygen, sulfur, selenium, or tellurium) are bonded directly to ring carbons of the diazine ring.

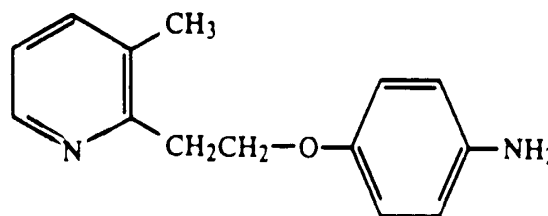
(1) Note. An example of a compound provided for herein is:



**244 Hetero ring is six-membered consisting of one nitrogen and five carbons:**

This subclass is indented under subclass 209. Compositions which contain a six-membered hetero ring consisting of one ring nitrogen and five ring carbons.

(1) Note. An example of a compound provided for herein is:



**245 Polycyclo ring system having the six-membered hetero ring as one of the cyclos:**

This subclass is indented under subclass 244. Compositions wherein the six-membered hetero ring is one of the cyclos of a polycyclo ring system.



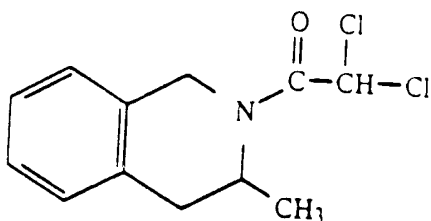
**246 Bicyclo ring system having the six-membered hetero ring as one of the cyclos:**

This subclass is indented under subclass 245. Compositions in which the polycyclo ring system consists of exactly two rings.

**247 Quinolines or isoquinolines (including hydrogenated):**

This subclass is indented under subclass 246. Compositions wherein the bicyclo ring system is characterized by having a six-membered carbocyclic ring orthofused to two carbons of the six-membered hetero ring.

(1) Note. An example of a compound provided for herein is:

**248 Piperidines:**

This subclass is indented under subclass 244. Compositions in which the six-membered hetero ring, consisting of one ring nitrogen and five ring carbons, contains no double bonds between ring members, i.e., the piperidine ring.

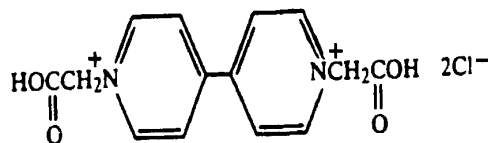
**249 Having -C(=X)-, wherein X is chalcogen, bonded directly to ring nitrogen of the piperidine ring:**

This subclass is indented under subclass 248. Compositions in which -C(=X)-, wherein X is chalcogen (i.e., oxygen, sulfur, selenium, or tellurium), is bonded directly to the ring nitrogen of the piperidine ring.

**250 Plural pyridine or partially hydrogenated pyridine rings:**

This subclass is indented under subclass 244. Compositions which contain at least two of the six-membered hetero rings, each consisting of one nitrogen and five carbons and having at least one double bond between ring members, i.e., pyridine or partially hydrogenated pyridine rings.

(1) Note. An example of a compound provided for herein is:

**251 Additional hetero ring containing:**

This subclass is indented under subclass 244. Compositions which contain an additional hetero ring.

**252 The additional hetero ring is five-membered including nitrogen:**

This subclass is indented under subclass 251. Compositions wherein the hetero ring is five-membered and has nitrogen as a ring member.

**253 Plural ring nitrogens in the additional hetero ring:**

This subclass is indented under subclass 252. Compositions wherein the additional hetero ring contains at least two ring nitrogens.

**254 Chalcogen bonded directly to ring carbon of the six-membered hetero ring:**

This subclass is indented under subclass 244. Compositions wherein chalcogen (i.e., oxygen, sulfur, selenium, or tellurium) is bonded directly to a ring carbon of the six-membered hetero ring.

**255 Nitrogen, other than as nitro or nitroso, or -C(=X)-, wherein X is chalcogen, bonded directly to ring carbon of the six-membered hetero ring:**

This subclass is indented under subclass 254. Compositions in which nitrogen, other than as nitro or nitroso (-NO<sub>2</sub> or -NO), or -C(=X)- wherein X is chalcogen (i.e., oxygen, sulfur, selenium, or tellurium) is bonded directly to a ring carbon of the six-membered hetero ring.

(1) Note. A nitro or nitroso group may be bonded directly to a ring carbon of the six-membered hetero ring, provided that a nitrogen which is not part of a nitro or nitroso group is also so attached.

**256 Benzene ring bonded directly to the chalcogen:**

This subclass is indented under subclass 254. Compositions wherein the chalcogen is bonded directly to a benzene ring.

**257 Containing -C(=X)NH-, wherein X is chalcogen and substitution may be made for hydrogen only:**

This subclass is indented under subclass 256. Compositions which contain a -C(=X)NH-group, wherein X is chalcogen and substitution may be made for hydrogen only.

**258 Containing -C(=X)X-, wherein the X's are the same or diverse chalcogens:**

This subclass is indented under subclass 256. Compositions which contain a -C(=X)X-group, wherein the X's are the same or diverse chalcogens.

**259 Nitrogen or sulfur attached directly or indirectly to the -C(=X)X- group by acyclic nonionic bonding:**

This subclass is indented under subclass 258. Compositions wherein the -C(=X)X- group is attached directly or indirectly to nitrogen or sulfur by acyclic nonionic bonding.

**260 Nitrogen, other than as nitro or nitroso, or -C(=X)-, wherein X is chalcogen, bonded directly to ring carbon of the six-membered hetero ring:**

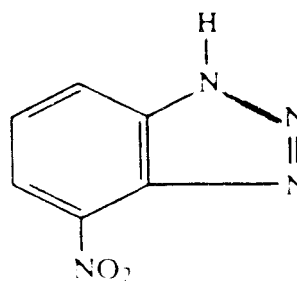
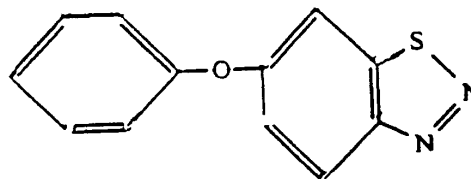
This subclass is indented under subclass 244. Compositions in which nitrogen, other than as nitro or nitroso (-NO<sub>2</sub> or -NO), or -C(=X)-, wherein X is chalcogen (i.e., oxygen, sulfur, selenium, or tellurium) is bonded directly to a ring carbon of the six-membered hetero ring.

- (1) Note. A nitro or nitroso group may be bonded directly to a ring carbon of the six-membered hetero ring, provided that a nitrogen which is not part of a nitro or nitroso group is also so attached.

**261 Hetero ring is five-membered having two or more ring hetero atoms of which at least one is nitrogen:**

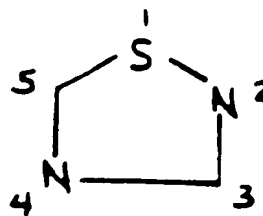
This subclass is indented under subclass 209. Compositions wherein the hetero ring is a five-membered ring having two or more ring hetero atoms of which at least one is nitrogen.

- (1) Note. Examples of compounds provided for herein are:

**262 1, 2, 4-thiadiazoles (including hydrogenated):**

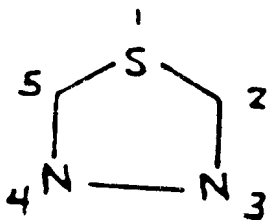
This subclass is indented under subclass 261. Compositions in which the five-membered hetero ring has sulfur in the 1-position, nitrogens in the 2- and 4-positions and carbons in the remaining two positions.

- (1) Note. This subclass provides for compounds containing the following ring which may have double bonds between its members:

**263 1, 3, 4-thiadiazoles (including hydrogenated):**

This subclass is indented under subclass 261. Compositions in which the five-membered hetero ring has sulfur in the 1-position, nitrogens in the 3- and 4-positions, and carbons in the remaining two positions.

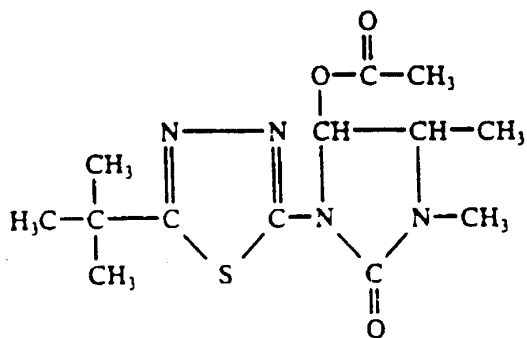
- (1) Note. This subclass provides for compounds containing the following ring which may have double bonds between its members:



**264 Diazole ring (including hydrogenated) attached directly to the thiadiazole ring by nonionic bonding:**

This subclass is indented under subclass 263. Compositions wherein a five-membered hetero ring consisting of two nitrogens and three carbons is attached directly to the thiadiazole ring by nonionic bonding.

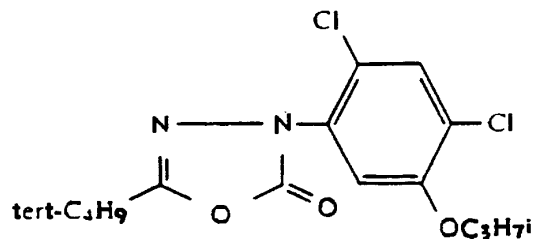
- (1) Note. An example of a compound provided for herein is:



**265 Oxadiazoles (including hydrogenated):**

This subclass is indented under subclass 261. Compositions in which the five-membered hetero ring consists of two ring nitrogens, one ring oxygen, and two ring carbons.

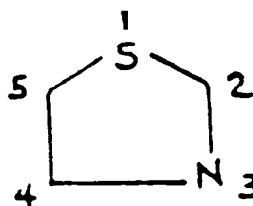
- (1) Note. An example of a compound provided for herein is:



**266 1, 3-thiazoles (including hydrogenated):**

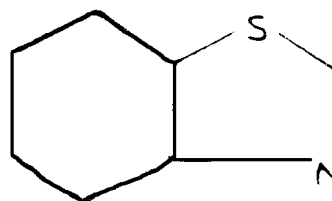
This subclass is indented under subclass 261. Compositions in which the five-membered hetero ring has sulfur in the 1-position, nitrogen in the 3-position, and carbons in the remaining three positions.

- (1) Note. This subclass provides for compounds containing the following ring which may have a double bond between its members:



**267 Benzothiazoles (including hydrogenated):**

This subclass is indented under subclass 266. Compositions wherein the compounds have the following ring system in which the bonds between the ring members may be single or double bonds:



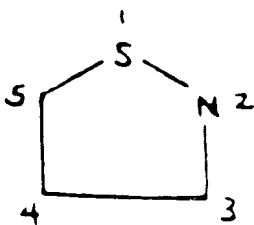
**268 Nitrogen attached directly to the thiazole ring by nonionic bonding:**

This subclass is indented under subclass 267. Compositions wherein nitrogen is attached directly to the thiazole ring by nonionic bonding.

**269 1, 2-thiazoles (including hydrogenated):**

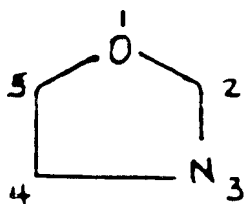
This subclass is indented under subclass 261. Compositions in which the five-membered hetero ring has sulfur in the 1-position, nitrogen in the 2-position, and carbons in the remaining three positions.

- (1) Note. This subclass provides for compounds containing the following ring which may have double bonds between its members:

**270 1,3-oxazoles (including hydrogenated):**

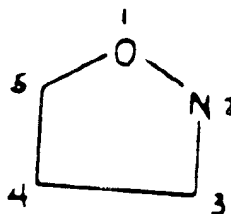
This subclass is indented under subclass 261. Compositions in which the five-membered hetero ring has oxygen in the 1-position, nitrogen in the 3-position, and carbons in the remaining three positions.

- (1) Note. This subclass provides for compounds containing the following ring which may have double bonds between its members:

**271 1, 2-oxazoles (including hydrogenated):**

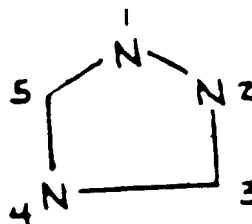
This subclass is indented under subclass 261. Compositions in which the five-membered hetero ring has oxygen in the 1-position, nitrogen in the 2-position, and carbons in the remaining three positions.

- (1) Note. This subclass provides for compounds containing the following ring which may have double bonds between its members:

**272 1, 2, 4-triazoles (including hydrogenated):**

This subclass is indented under subclass 261. Compositions in which the five-membered hetero ring has nitrogens in the 1-, 2-, and 4-positions and carbons in the remaining two positions.

- (1) Note. This subclass provides for compounds containing the following ring which may have double bonds between its members:

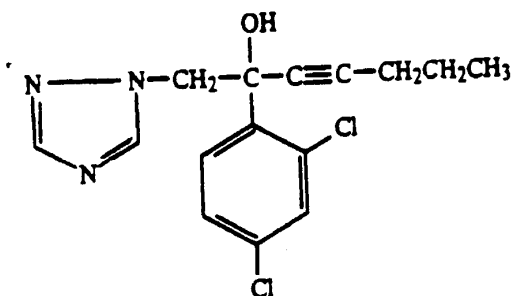
**273 Chalcogen, nitrogen, or -C(=X)-, wherein X is chalcogen, bonded directly to ring carbon of the triazole ring:**

This subclass is indented under subclass 272. Compositions in which chalcogen (i.e., oxygen, sulfur, selenium, or tellurium), nitrogen, or -C(=X)-, wherein X is chalcogen, is bonded directly to a ring carbon of the triazole ring.

**274 Nitrogen or acyclic carbon chain containing carbon to carbon unsaturation attached directly or indirectly to the triazole ring by acyclic nonionic bonding:**

This subclass is indented under subclass 272. Compositions wherein the triazole ring is attached directly or indirectly to nitrogen or an acyclic carbon chain containing carbon to carbon unsaturation by acyclic nonionic bonding.

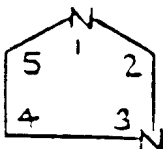
- (1) Note. An example of a compound provided for herein is :



**275 1, 3-diazoles (including hydrogenated):**

This subclass is indented under subclass 261. Compositions in which the five-membered hetero ring has nitrogens in the 1- and 3-positions and carbons in the remaining three positions.

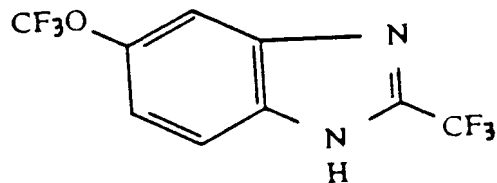
- (1) Note. This subclass provides for compounds containing the following ring which may have double bonds between its members:



**276 Polycyclo ring system having the diazole ring as one of the cyclos (e.g., benzimidazoles, etc.):**

This subclass is indented under subclass 275. Compositions wherein the diazole ring is one of the cyclos of a polycyclo ring system.

- (1) Note. An example of a compound provided for herein is:



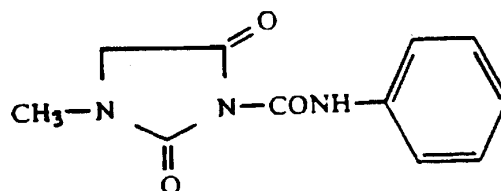
**277 Chalcogen or nitrogen bonded directly to ring carbon of the diazole ring:**

This subclass is indented under subclass 275. Compositions wherein chalcogen (i.e., oxygen, sulfur, selenium, or tellurium) or nitrogen is bonded directly to a ring carbon of the diazole ring.

**278 Plural chalcogens bonded directly to ring carbons of the diazole ring:**

This subclass is indented under subclass 277. Compositions wherein at least two chalcogens (i.e., oxygen, sulfur, selenium, or tellurium) are bonded directly to ring carbons of the diazole ring.

- (1) Note. An example of a compound provided for herein is:



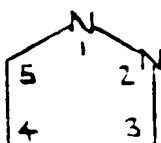
**279 Having -C(=X)-, wherein X is chalcogen, bonded directly to ring carbon of the diazole ring:**

This subclass is indented under subclass 275. Compositions in which -C(=X)-, wherein X is chalcogen (i.e., oxygen, sulfur, selenium, or tellurium), is bonded directly to a ring carbon of the diazole ring.

**280 1, 2-diazoles (including hydrogenated):**

This subclass is indented under subclass 261. Compositions in which the five-membered hetero ring has nitrogens in the 1- and 2-positions and carbons in the remaining three positions.

- (1) Note. This subclass provides for compounds containing the following ring which may have double bonds between its members:

**281 Polycyclo ring system having the diazole ring as one of the cyclos:**

This subclass is indented under subclass 280. Compositions wherein the diazole ring is one of the cyclos of a polycyclo ring system.

**282 Chalcogen or nitrogen bonded directly to ring carbon of the diazole ring:**

This subclass is indented under subclass 280. Compositions wherein chalcogen (i.e., oxygen, sulfur, selenium, or tellurium) or nitrogen is bonded directly to a ring carbon of the diazole ring.

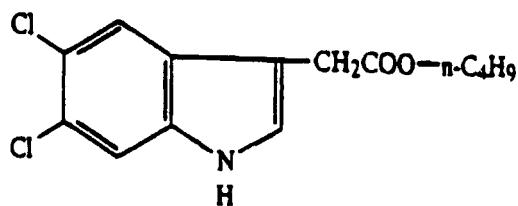
**283 Hetero ring is five-membered consisting of one nitrogen and four carbons:**

This subclass is indented under subclass 209. Compositions which contain a five-membered hetero ring consisting of one ring nitrogen and four ring carbons.

**284 Polycyclo ring system having the five-membered hetero ring as one of the cyclos (e.g., indoles, etc.):**

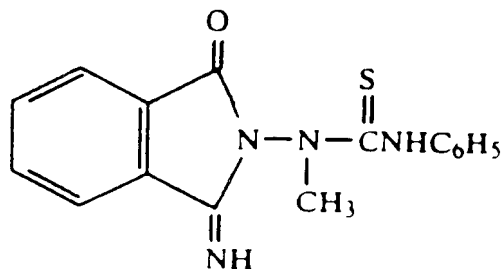
This subclass is indented under subclass 283. Compositions wherein the hetero ring is one of the cyclos of a polycyclo ring system.

- (1) Note. An example of a compound provided for herein is:

**285 The ring nitrogen is bonded directly to two ring carbons of the same cyclo which carbons are members of one cyclo only (e.g., isoindoles, hydrogenated isoindoles, etc.):**

This subclass is indented under subclass 284. Compositions wherein the ring nitrogen of the five-membered hetero ring is bonded directly to two ring carbons of the same cyclo, which carbons are members of one cyclo only.

- (1) Note. An example of a compound provided for herein is:

**286 Benzene ring bonded directly to the ring nitrogen of the five-membered hetero ring:**

This subclass is indented under subclass 285. Compositions wherein the ring nitrogen of the five-membered hetero ring is bonded directly to a benzene ring.

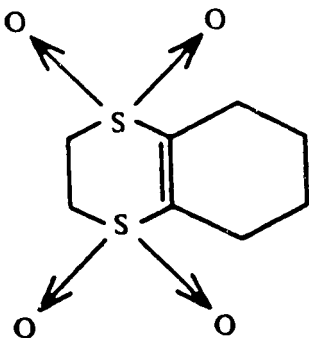
**287 Having -C(=X)-, wherein X is chalcogen, bonded directly to the five-membered hetero ring:**

This subclass is indented under subclass 283. Compositions in which -C(=X)-, wherein X is chalcogen (i.e., oxygen, sulfur, selenium, or tellurium), is bonded directly to the five-membered hetero ring.

**288 Sulfur containing hetero ring:**

This subclass is indented under subclass 209. Compositions which contain a hetero ring having sulfur as a ring member.

- (1) Note. An example of a compound provided for herein is:

**289 The hetero ring is five-membered:**

This subclass is indented under subclass 288. Compositions wherein the hetero ring is five-membered.

**290 Plural ring hetero atoms in the hetero ring:**

This subclass is indented under subclass 289. Compositions wherein the hetero ring contains at least one ring hetero atom in addition to the ring sulfur.

**291 Oxygen containing hetero ring:**

This subclass is indented under subclass 209. Compositions which contain a hetero ring having oxygen as a ring member.

**292 The hetero ring is six-membered:**

This subclass is indented under subclass 291. Compositions wherein the hetero ring is six-membered.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 117, for active ingredients which contain six-membered hetero oxygen compounds derived from micro-organisms or fermentation processes.

**293 Plural ring oxygens in the hetero ring:**

This subclass is indented under subclass 292. Compositions in which the hetero ring contains at least two ring oxygens.

**294 The hetero ring is five-membered:**

This subclass is indented under subclass 291. Compositions wherein the hetero ring is five-membered.

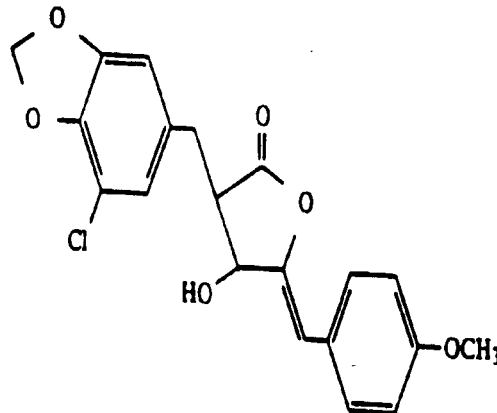
**295 Plural ring oxygens in the hetero ring:**

This subclass is indented under subclass 294. Compositions in which the hetero ring contains at least two ring oxygens.

**296 Polycyclo ring system having the hetero ring as one of the cyclos (e.g., methylenedioxyphenyls, etc.):**

This subclass is indented under subclass 295. Compositions wherein the hetero ring is one of the cyclos of a polycyclo ring system.

- (1) Note. An example of a compound provided for herein is:

**297 Polycyclo ring system having the hetero ring as one of cyclos:**

This subclass is indented under subclass 294. Compositions wherein the hetero ring is one of the cyclos of a polycyclo ring system.

**298 Bicyclo ring system having the hetero ring as one of the cyclos:**

This subclass is indented under subclass 297. Compositions in which the polycyclo ring system consists of exactly two rings.

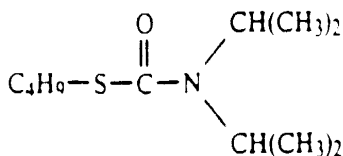
**299 Chalcogen or -C(=X)-, wherein X is chalcogen, bonded directly to the hetero ring:**

This subclass is indented under subclass 294. Compositions in which chalcogen (i.e., oxygen, sulfur, selenium, or tellurium), or -C(=X)-, wherein X is chalcogen, is bonded directly to the hetero ring.

**300 Containing -NH-C(=X)X-, wherein the X's are the same or diverse chalcogens and substitution may be made for hydrogen only (e.g., carbamates, thiocarbamates, etc.):**

This subclass is indented under subclass 189. Compositions in which the organic active compound contains the -NH-C(=X)X- group, wherein the X's are the same or diverse chalcogens (i.e., oxygen, sulfur, selenium, or tellurium) and substitution may be made for hydrogen only.

- (1) Note. An example of a compound provided for herein is:

**301 Plural -NH-C(=X)X- groups:**

This subclass is indented under subclass 300. Compositions wherein the organic active compound contains more than one -NH-C(=X)X- group.

**302 Nitrogen, cyano, chalcogen, or additional -C(=X)- bonded directly to the nitrogen:**

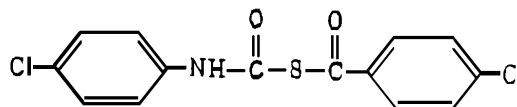
This subclass is indented under subclass 300. Compositions wherein the nitrogen of the -NH-C(=X)X- group is bonded directly to nitrogen, cyano, chalcogen, or an additional -C(=X)- group.

**303 Nitrogen or additional chalcogen attached indirectly to the nitrogen by acyclic nonionic bonding:**

This subclass is indented under subclass 300. Compositions wherein the nitrogen of the -NH-C(=X)X- group is attached indirectly to nitro-

gen or an additional chalcogen by acyclic nonionic bonding.

- (1) Note. An example of a compound provided for herein is:

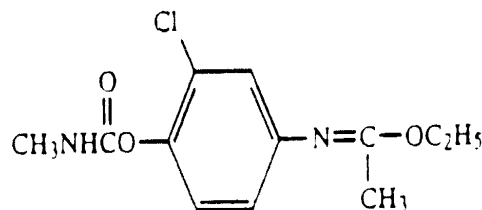
**304 Benzene ring bonded directly to the nitrogen:**

This subclass is indented under subclass 300. Compositions wherein the nitrogen of the -NH-C(=X)X- group is bonded directly to a benzene ring.

**305 Benzene ring attached indirectly to the nitrogen by nonionic bonding:**

This subclass is indented under subclass 300. Compositions wherein the nitrogen of the -NH-C(=X)X- group is attached indirectly to a benzene ring by nonionic bonding.

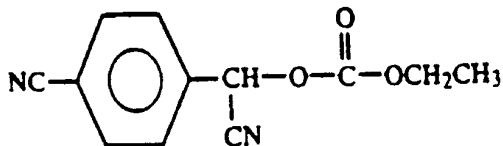
- (1) Note. An example of a compound provided for herein is:

**306 Containing -X-C(=X)X-, wherein the X's are the same or diverse chalcogens (e.g., carbonates, thiocarbonates, xanthates, etc.):**

This subclass is indented under subclass 189. Compositions in which the organic active compound contains the -X-C(=X)X- group, wherein the X's are the same or diverse chalcogens (i.e., oxygen, sulfur, selenium, or tellurium).

- (1) Note. An example of a compound provided for herein is:

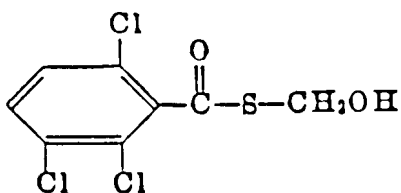




- 307** Containing  $-C(=X)X-$ , wherein the X's are the same or diverse chalcogens, and at least one X is other than oxygen (e.g., thiocarboxylates, etc.):

This subclass is indented under subclass 189. Compositions in which the organic active compound contains the  $-C(=X)X-$  group, wherein the X's are the same or diverse chalcogens (i.e., oxygen, sulfur, selenium, or tellurium) and at least one X is other than oxygen.

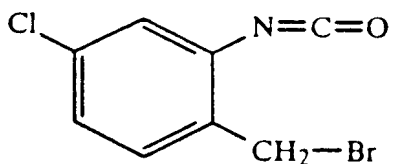
- (1) Note. An example of a compound provided for herein is



- 308** Carbon bonded directly to  $-NCX$  or  $-XCN$ , wherein X is chalcogen (e.g., cyanate, thiocyanate, or isothiocyanate, etc.):

This subclass is indented under subclass 189. Compositions in which the organic active compound contains a  $-NCX$  or  $-XCN$  group, wherein the X is chalcogen (i.e., oxygen, sulfur, selenium, or tellurium), bonded directly to carbon.

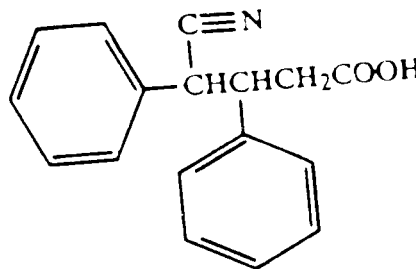
- (1) Note. An example of a compound provided for herein is:



- 309** Cyano or isocyano bonded directly to carbon:

This subclass is indented under subclass 189. Compositions wherein the organic active compound contains carbon bonded directly to a cyano ( $-CN$ ) or isocyano ( $-NC$ ) group.

- (1) Note. An example of a compound provided for herein is:



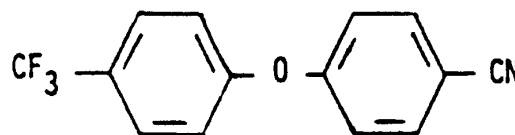
- 310** Benzene ring bonded directly to the cyano or isocyano group:

This subclass is indented under subclass 309. Compositions wherein the cyano or isocyano group is bonded directly to a benzene ring.

- 311** Two benzene rings bonded directly to the same oxygen (e.g., phenoxyphenyl compounds, etc.):

This subclass is indented under subclass 310. Compositions wherein a single oxygen is bonded directly to two benzene rings.

- (1) Note. An example of a compound provided for herein is:

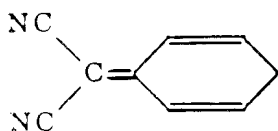


- 312** Nitrogen, other than as nitro or nitroso, attached indirectly to the cyano or isocyano group by nonionic bonding:

This subclass is indented under subclass 309. Compositions wherein the cyano or isocyano group is attached indirectly to nitrogen, other

than as nitro or nitroso ( $-\text{NO}_2$  or  $-\text{NO}$ ), by non-ionic bonding.

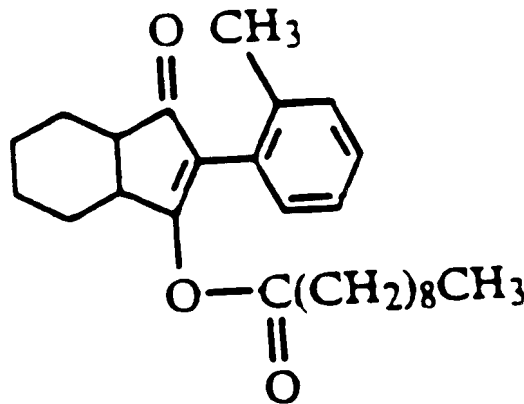
- (1) Note. A nitro or nitroso group may be attached indirectly to the cyano or isocyanato group by nonionic bonding, provided that a nitrogen which is not part of a nitro or nitroso group is also attached.
- (2) Note. An example of a compound provided for herein is:



- 313 Carboxylic acid ester (i.e.,  $\text{Z}-\text{C}(=\text{O})\text{O}-$  wherein Z is hydrogen or an organic radical bonded to the  $-\text{C}(=\text{O})-$  group by a carbon and the single bonded oxygen of the  $\text{C}(=\text{O})\text{O}-$  group is bonded directly to carbon, which carbon may be single bonded to any atom but may be multiple bonded only to carbon):**

This subclass is indented under subclass 189. Compositions in which the organic active compound is of the formula  $\text{Z}-\text{C}(=\text{O})\text{O}-$  wherein Z is hydrogen or an organic radical bonded to the  $-\text{C}(=\text{O})-$  group by a carbon and the single bonded oxygen of the  $-\text{C}(=\text{O})\text{O}-$  group is bonded directly to carbon which carbon may be single bonded to any atom but may be multiple bonded only to carbon.

- (1) Note. An example of a compound provided for herein is:



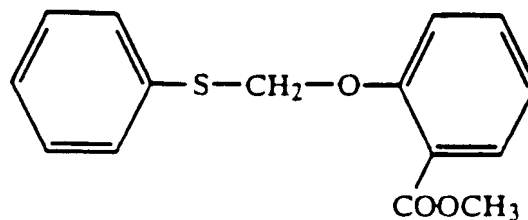
- 314 Z contains a benzene ring:**

This subclass is indented under subclass 313. Compositions wherein Z contains a benzene ring.

- 315 Z contains sulfur or nitrogen, other than as nitro or nitroso, attached directly or indirectly to the benzene ring by nonionic bonding:**

This subclass is indented under subclass 314. Compositions wherein Z contains a benzene ring attached directly or indirectly to sulfur or nitrogen, other than as nitro or nitroso ( $-\text{NO}_2$  or  $-\text{NO}$ ), by nonionic bonding.

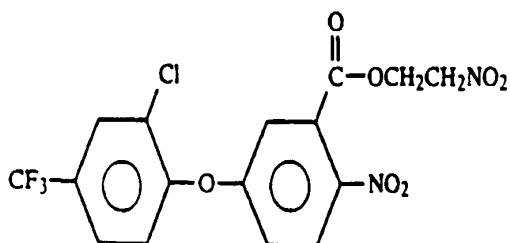
- (1) Note. A nitro or nitroso group may be attached directly or indirectly to the benzene ring by nonionic bonding, provided that a nitrogen which is not part of a nitro or nitroso group is also so attached.
- (2) Note. An example of a compound provided for herein is:



**316 Z contains two benzene rings bonded directly to the same chalcogen (e.g., phenoxybenzoates, etc.):**

This subclass is indented under subclass 314. Compositions wherein Z contains two benzene rings bonded directly to the same chalcogen (i.e., oxygen, sulfur, selenium, or tellurium).

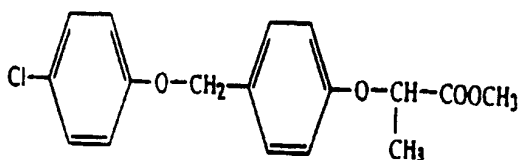
- (1) Note. An example of a compound provided for herein is:



**317 Z contains oxygen bonded directly to the benzene ring and indirectly bonded to the -C(=O) O- group through an acyclic carbon or acyclic carbon chain (e.g., phenoxyacetates, etc.):**

This subclass is indented under subclass 314. Compositions wherein Z contains oxygen bonded directly to the benzene ring and indirectly bonded to the -C(=O) O- group through an acyclic carbon or acyclic carbon chain.

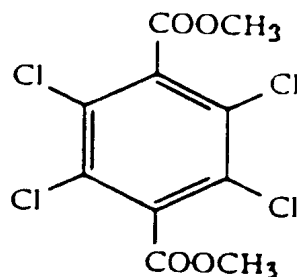
- (1) Note. An example of a compound provided for herein is:



**318 The benzene ring is bonded directly to the carbon of the -C(=O) O- group (e.g., benzoates, etc.):**

This subclass is indented under subclass 314. Compositions wherein the carbon of the -C(=O) O- group is bonded directly to the benzene ring.

- (1) Note. An example of a compound provided for herein is:



**319 Z contains nitrogen, sulfur, or halogen attached indirectly to the -C(=O) O- group by nonionic bonding:**

This subclass is indented under subclass 313. Compositions wherein Z contains nitrogen, sulfur, or halogen attached indirectly to the -C(=O) O- group by nonionic bonding.

**320 Carboxylic acid, carboxylic acid salt, carboxylic acid anhydride, or carboxylic acid halide:**

This subclass is indented under subclass 189. Composition in which the organic active compound contains a -C(=O)-O-C(=O)-, -C(=O)-halo, wherein halo is halogen, or a -C(=O)-O-X group, wherein X is hydrogen or a cation.

**321 Benzene ring containing:**

This subclass is indented under subclass 320. Compositions which contain a benzene ring.

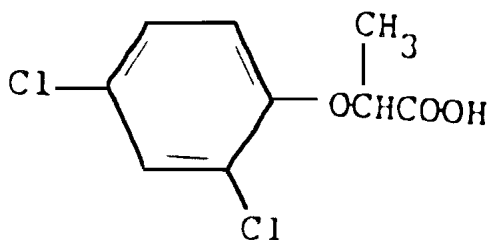
**322 Nitrogen, other than as nitro or nitroso, attached directly or indirectly to the benzene ring by nonionic bonding:**

This subclass is indented under subclass 321. Compositions wherein the benzene ring is attached directly or indirectly to nitrogen, other than as nitro or nitroso (-NO<sub>2</sub> or -NO), by nonionic bonding.

- (1) Note. A nitro or nitroso group may be attached directly or indirectly to the benzene ring by nonionic bonding, provided that a nitrogen which is not part of a nitro or nitroso group is also so attached.

**323 Oxygen is bonded directly to the benzene ring and is part of an acyclic chain between the benzene ring and a -C(=O)O- group (e.g., 2,4-dichlorophenoxyacetic acids, etc.):**  
This subclass is indented under subclass 321. Compositions wherein oxygen is bonded directly to the benzene ring and is part of an acyclic chain between the benzene ring and a -C(=O)O- group.

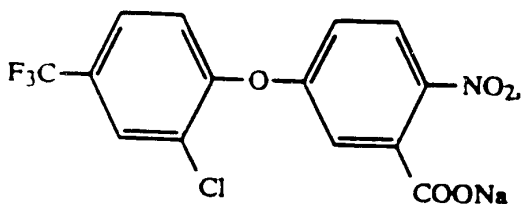
(1) Note. An example of a compound provided for herein is:



**324 The benzene ring is bonded directly to the carbon of a -C(=O)O- group (e.g., benzoic acids, etc.):**

This subclass is indented under subclass 321. Compositions wherein the carbon of a -C(=O)O- group is bonded directly to the benzene ring.

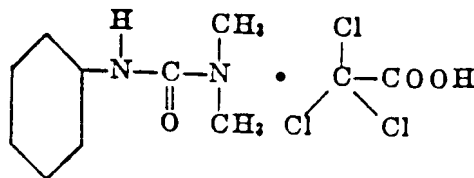
(1) Note. An example of a compound provided for herein is



**325 Containing halogen bonded directly to carbon (e.g., trichloroacetates, etc.):**

This subclass is indented under subclass 320. Compositions which contain carbon bonded directly to halogen.

(1) Note. An example of a compound provided for herein is:

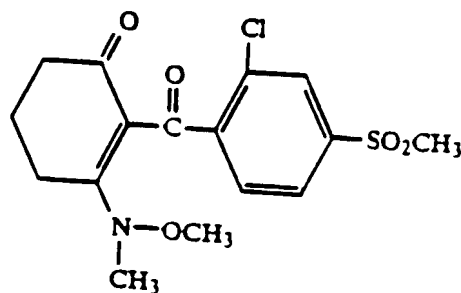


**326 Containing nitrogen, other than as nitro or nitroso, attached directly or indirectly to carbon by nonionic bonding:**

This subclass is indented under subclass 189. Compositions wherein the organic active compound contains carbon attached directly or indirectly to nitrogen, other than as nitro or nitroso (-NO<sub>2</sub> or -NO), by nonionic bonding.

(1) Note. A nitro or nitroso group may be attached directly or indirectly to carbon by nonionic bonding, provided that a nitrogen which is not part of a nitro or nitroso group is also so attached.

(2) Note. An example of a compound provided for herein is:



**327 Ureas or thioureas (i.e., HNH-C(=X)-HNH, wherein X is oxygen or sulfur and substitution may be made for hydrogen only):**

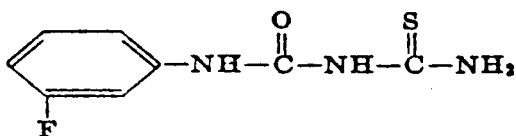
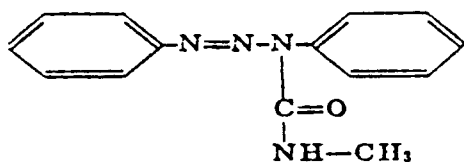
This subclass is indented under subclass 326. Compositions which contain HNH-C(=X)-HNH, wherein X is oxygen or sulfur and substitution may be made for hydrogen only.

- (1) Note. Isoureas, isothiureas, pseudoureas, and pseudothioureas are not provided for in this subclass.

**328 Nitrogen or -C(=X)- attached directly to urea or thiourea nitrogen by nonionic bonding (e.g., biurets, semicarbazones, etc.):**

This subclass is indented under subclass 327. Compositions wherein a urea or thiourea nitrogen is attached directly to nitrogen or -C(=X)- by nonionic bonding.

- (1) Note. Examples of compounds provided for herein are:



**329 Sulfur attached directly or indirectly to urea or thiourea nitrogen by nonionic bonding:**

This subclass is indented under subclass 327. Compositions wherein a urea or thiourea nitrogen is attached directly or indirectly to sulfur by nonionic bonding.

**330 Benzene ring attached directly or indirectly to urea or thiourea nitrogen by nonionic bonding:**

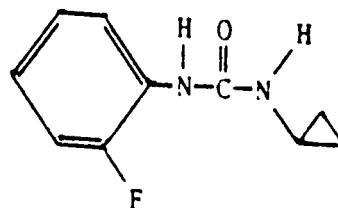
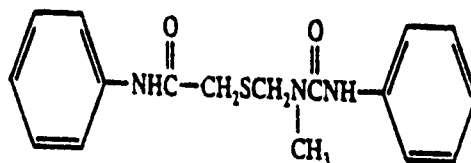
This subclass is indented under subclass 327. Compositions wherein a urea or thiourea nitrogen is attached directly or indirectly to a benzene ring by nonionic bonding.

**331 Nitrogen, other than as nitro or nitroso, or -C(=X)-, attached indirectly to the urea or thiourea nitrogen by nonionic bonding, or alicyclic ring attached directly or indirectly**

**to urea or thiourea nitrogen by nonionic bonding:**

This subclass is indented under subclass 330. Compositions wherein a urea or thiourea nitrogen is attached directly or indirectly to an alicyclic ring by nonionic bonding, or is attached indirectly to nitrogen, other than as nitro or nitroso (-NO<sub>2</sub> or -NO), or -C(=X)- by nonionic bonding.

- (1) Note. Examples of compounds provided for herein are:



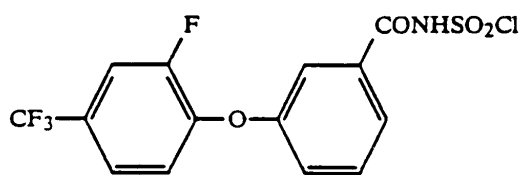
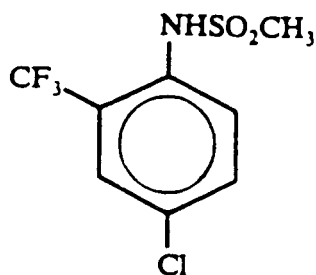
**332 Plural benzene rings containing:**

This subclass is indented under subclass 330. Compositions which contain two or more benzene rings.

**333 Containing -NH- (O=) S(=O)-, wherein substitution may be made for hydrogen only (e.g., sulfonamides, sulfamides, etc.):**

This subclass is indented under subclass 326. Compositions which contain the -NH-(O=) S(=O)- group, wherein substitution may be made for hydrogen only.

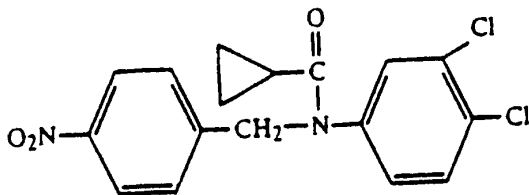
- (1) Note. Examples of compounds provided for herein are:



- 334 Carboxamides or thiocarboxamides (i.e., R-(C=X)NH<sub>2</sub>, wherein X is oxygen or sulfur, R is carbon or hydrogen, and substitution may be made for hydrogen only):**

Compositions under 326 which contain R-(C=X)NH<sub>2</sub>, wherein X is oxygen or sulfur, R is carbon or hydrogen, and substitution may be made for hydrogen only.

- (1) Note. An example of a compound provided for herein is:



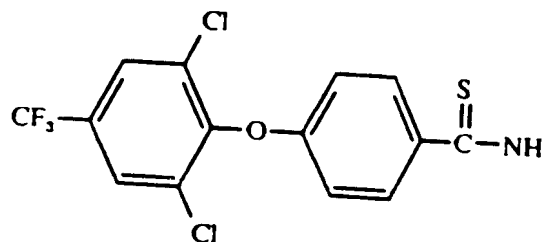
- 335 Plural R-C(=X)NH<sub>2</sub> groups containing:**  
This subclass is indented under subclass 334. Compositions which contain two or more R-C(=X)NH<sub>2</sub> groups.

- 336 R contains benzene ring:**  
This subclass is indented under subclass 334. Compositions wherein R contains a benzene ring.

- 337 The benzene ring is bonded directly to the carbon of the -(C=X)NH<sub>2</sub> group (e.g., benzamides, etc.):**

This subclass is indented under subclass 336. Compositions wherein the carbon of the -(C=X)NH<sub>2</sub> group is bonded directly to the benzene ring.

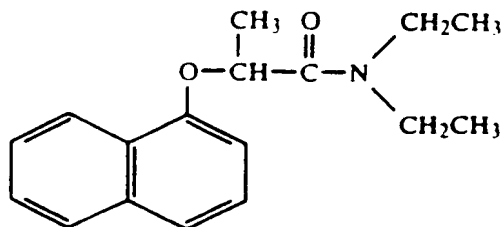
- (1) Note. An example of a compound provided for herein is:



- 338 Chalcogen is bonded directly to the benzene ring and is part of an acyclic chain between the benzene ring and the -C(=X)NH<sub>2</sub> group, (e.g., phenoxyalkylamides, etc.):**

This subclass is indented under subclass 336. Compositions wherein chalcogen (i.e., oxygen, sulfur, selenium, or tellurium) is bonded directly to the benzene ring and is part of an acyclic chain between the benzene ring and the -C(=X)NH<sub>2</sub> group.

- (1) Note. An example of a compound provided for herein is:

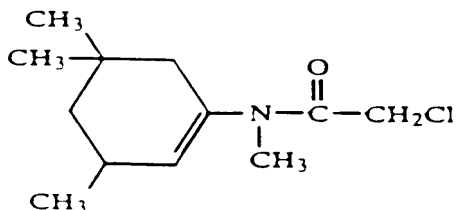


- 339 R is acyclic:**  
This subclass is indented under subclass 334. Compositions wherein R does not contain a ring.

**340 Halogen bonded directly to carbon in R (e.g., chloroacetamides, etc.):**

This subclass is indented under subclass 339. Compositions wherein a carbon atom in R is bonded directly to halogen.

- (1) Note. An example of a compound provided for herein is:

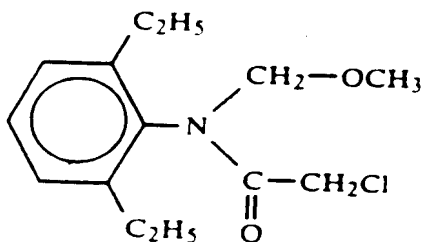
**341 Benzene ring bonded directly to the carboxamide or thiocarboxamide nitrogen:**

This subclass is indented under subclass 340. Compositions wherein the carboxamide or thiocarboxamide nitrogen is bonded directly to a benzene ring.

**342 The carboxamide or thiocarboxamide nitrogen and a chalcogen are directly attached to the same acyclic carbon or acyclic carbon chain:**

This subclass is indented under subclass 341. Compositions wherein an acyclic carbon or an acyclic carbon chain are attached to both a chalcogen and to the carboxamide or thiocarboxamide nitrogen.

- (1) Note. An example of a compound provided for herein is:

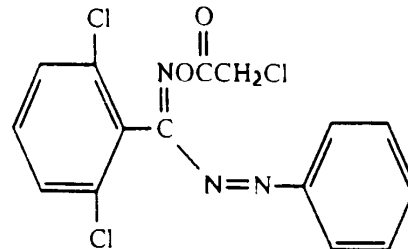
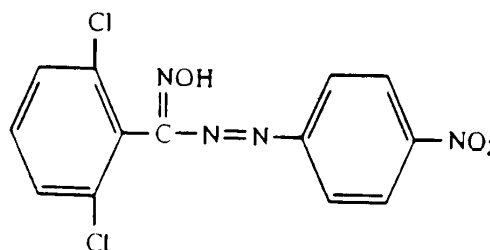
**343 Nitrogen double bonded directly to carbon:**

This subclass is indented under subclass 326. Compositions wherein carbon is double bonded directly to the nitrogen.

**344 Oximes (i.e., HCH=N-OH, wherein substitution may be made for hydrogen only):**

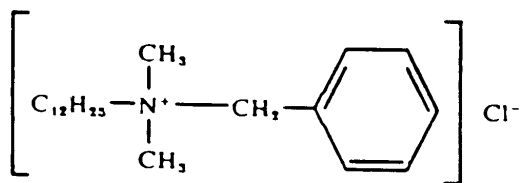
This subclass is indented under subclass 343. Compositions which contain the -CH=N-O- group, wherein substitution may be made for hydrogen only:

- (1) Note. Examples of compounds provided for herein are:

**345 Quaternary ammonium containing:**

This subclass is indented under subclass 326. Compositions which contain a pentavalent nitrogen bonded by four valences to carbon.

- (1) Note. An example of a compound provided for herein is:



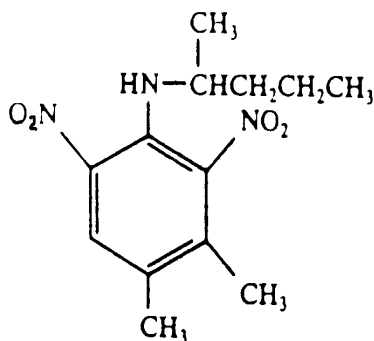
**346** Containing -N=N-, -NH-NH-, or -NH-X-, wherein X is chalcogen and substitution may be made for hydrogen only:

This subclass is indented under subclass 326. Compositions which contain the -N=N-, -NH-NH-, or NH-X- group, wherein X is chalcogen (i.e., oxygen, sulfur, selenium, or tellurium) and substitution may be made for hydrogen only.

**347** The nitrogen and a nitro group bonded directly to the same benzene ring (e.g., nitroanilines, etc.):

This subclass is indented under subclass 326. Compositions wherein a single benzene ring is bonded directly to both the nitrogen and a nitro group.

(1) Note. An example of a compound provided for herein is:



**348** Ketones or aldehydes:

This subclass is indented under subclass 189. Compositions wherein the organic active compound contains a -(C=O)- group bonded directly to two carbon atoms, to a carbon and a hydrogen atom or to two hydrogen atoms.

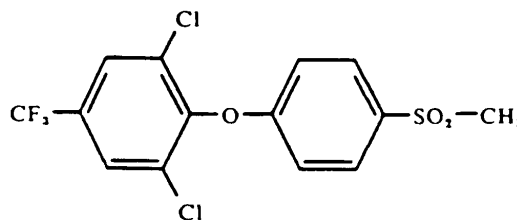
**349** Sulfur, selenium, or tellurium compound (e.g., thioalcohols, mercaptans, etc.):

This subclass is indented under subclass 189. Compositions wherein the organic active compound contains sulfur, selenium, or tellurium.

**350** Chalcogen bonded directly to sulfur (e.g., sulfones, etc.):

This subclass is indented under subclass 349. Compositions which contain sulfur bonded directly to chalcogen (i.e., oxygen, sulfur, selenium, or tellurium).

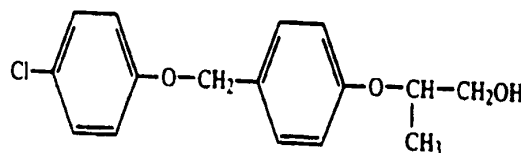
(1) Note. An example of a compound provided for herein is:



**351** Ethers:

This subclass is indented under subclass 189. Compositions wherein the organic active compound contains an oxygen bonded directly to two carbon atoms.

(1) Note. An example of a compound provided for herein is:



**352** Plural benzene rings bonded directly to the same oxygen:

This subclass is indented under subclass 351. Compositions wherein the same oxygen is bonded directly to two benzene rings.

**353** Hydroxy bonded directly to carbon (H of -OH may be replaced by a substituted or



**unsubstituted ammonium ion or a Group IA or IIA light metal):**

This subclass is indented under subclass 189. Compositions in which the organic active compound contains carbon bonded directly to a hydroxy group, wherein the hydrogen of the -OH group may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal.

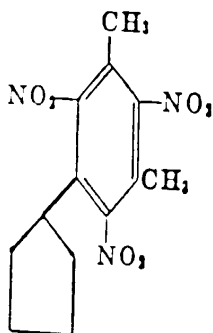
**354 Benzene ring containing:**

This subclass is indented under subclass 353. Compositions which contain a benzene ring.

**355 Nitro containing (e.g., nitrobenzenes, etc.):**

This subclass is indented under subclass 189. Compositions wherein the organic active compound contains a -NO<sub>2</sub> group.

- (1) Note. An example of a compound provided for herein is

**356 Halogenated hydrocarbons:**

This subclass is indented under subclass 189. Compositions wherein the organic active compound contains carbon bonded to halogen.

**357 Hydrocarbons:**

This subclass is indented under subclass 189. Compositions wherein the organic active compound consists of carbon and hydrogen only.

**358 Designated nonactive ingredient containing:**

Subject matter under subclass definition 116.1 wherein the active ingredient is stated, or described in nominal terms as a type of plant growth regulant, and a non-plant growth regulating ingredient is specified, i.e., by name,

chemical structure, or partial chemical structure.

**359 Microencapsulating or encapsulating agent:**

This subclass is indented under subclass 358. Subject matter wherein the plant growth regulant is microencapsulated or encapsulated by a nonactive ingredient, which usually surrounds the active ingredient; the active ingredient is often present as a droplet, with the encapsulating ingredient as a thin film.

- (1) Note. The encapsulating ingredient includes, but is not limited to, solid condensation resins such as polyurethanes, polyureas, etc.

**SEE OR SEARCH CLASS:**

264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclass 4 for processes of making microcapsules.

**360 Solid resin containing (e.g., film-forming resins, etc.):**

This subclass is indented under subclass 358. Subject matter wherein the designated nonactive ingredient is a solid resin.

- (1) Note. The resin must be stated as being a solid, or described as being film forming, elastomeric, or in some other way indicated as clearly being solid to be in this subclass.
- (2) Note. Examples of solid resins include condensation resins such as polyesters, polyurethanes, polyureas, etc.

**SEE OR SEARCH CLASS:**

523, Synthetic Resins, Natural Rubbers, subclass 122, for synthetic resin compositions having biocidal or biostatic properties, and subclass 123, for synthetic resin plant receptacle compositions.

**361 The resin is derived from ethylenically unsaturated monomer only (e.g., addition resins, natural rubbers, etc.):**

This subclass is indented under subclass 360. Subject matter wherein the solid resin is derived only from one or more monomers of

- the formula:  $R_1HC=CHR_2$ , wherein  $R_1$  and  $R_2$  are H or organic radicals.
- (1) Note. Natural rubbers are included in this subclass.
- (2) Note. A resin derived from an ethylenically unsaturated monomer is assumed to be solid, unless stated otherwise.
- 362 Liquid carrier containing (e.g., water, hydrocarbon, etc.):**  
This subclass is indented under subclass 358. Subject matter wherein the designated nonactive ingredient is a liquid carrier, which carrier may be a liquid or a mixture of liquids, which liquids may be organic or inorganic.
- 363 Emulsion or foam (i.e., liquid continuous phase, and liquid or gas discontinuous phase):**  
This subclass is indented under subclass 362. Subject matter wherein a continuous liquid phase is present, and (a) a discontinuous gas phase is present for a foam, or (b) a discontinuous liquid phase is present for an emulsion.
- (1) Note. The emulsion may be water continuous-organic discontinuous, or water discontinuous-organic continuous phases. An emulsifier is usually present to stabilize the emulsion.
- SEE OR SEARCH CLASS:  
516, Colloid Systems and Wetting Agents; Subcombinations Thereof; Processes of Making, Stabilizing, Breaking, or Inhibiting, subclasses 10 through 19, for foams, per se, and subclasses 9 and 20-76, for emulsions, per se.
- 364 Emulsifier or foaming agent containing a sulfonic acid, a metal salt thereof, or an unsubstituted or n-monosubstituted amide thereof:**  
This subclass is indented under subclass 363. Subject matter wherein an emulsifier or foaming agent of the formula  $R_1SO_2R_2$ , wherein  $R_1$  is MO, or  $R_3NH$ , M is H or a metal,  $R_3$  is an organic radical or H, and  $R_2$  is an organic radical, is present to stabilize the foam or emulsion.
- 365 Organic nitrogen containing solvent, emulsifier, or foaming agent of formula  $R_1N(R_2)_2$ :**  
This subclass is indented under subclass 363. Subject matter wherein an organic solvent, emulsifier, or foaming agent present is of the formula  $R_1N(R_2)_2$ , wherein  $R_1$  is an organic radical, and  $R_2$  is H or an organic radical.
- (1) Note. The nitrogen may be a member of a hetero ring.
- 366 Gel (i.e., a colloidal solution of a liquid in a solid):**  
This subclass is indented under subclass 362. Subject matter wherein the plant growth regulator is incorporated in a gel.
- (1) Note. Examples of gelling agents include, but are not limited to, polysaccharides, proteins, and silica.
- SEE OR SEARCH CLASS:  
516, Colloid Systems and Wetting Agents; Subcombinations Thereof; Processes of Making, Stabilizing, Breaking, or Inhibiting, subclasses 98 through 112 for gels, per se.
- 367 Granular or pulverulent designated nonactive ingredient containing:**  
This subclass is indented under subclass 358. Subject matter wherein the final form of the composition is granular (grainy), or pulverulent (fine powder or dust).
- (1) Note. Examples of inert ingredients proper for this subclass include, but are not limited to, clays, and other inert carriers, wetting agents, etc.
- END