This Class 585 is considered to be an integral part of Class 260 (see the Class 260 schedule for the position of this Class in schedule hierarchy). This Class retains all pertinent definitions and class lines of Class 260.

PRODUCT BLEND, E.G., COMPOSITION, ETC., OR BLENDING PROCESS PER SE

With nonhydrocarbon additive
.O containing
...And N containing
....Additive(s) aromatic
.Gaseous blend
.Fluent dielectric
.Mineral oil-containing
.Component of indefinite molecular weight greater than 150
.Reaction product of halogenated hydrocarbon
.Wax
.Polymer
..Containing aromatic ring
..Plural polymers or copolymer of specified olefins
.Mineral oil (petroleum) fraction
.For fuel use only

HYDRATE OR PRODUCTION THEREOF COMPOUND OR REACTION PRODUCT MIXTURE
.Polymer of indefinite molecular weight
..Acyclic
..Containing aromatic ring
.Alicyclic
..Polycyclo, i.e., fused
...Of differing carbon content, more than three or with bridge
..Unsaturated ring
.Aromatic
..Plural rings
..Polycyclo, i.e., fused
...Of differing carbon content or with bridge

PRODUCTION OF HYDROCARBON MIXTURE FROM REFUSE OR VEGETATION
.From synthetic resin or rubber

ADDITION OF HYDROGEN TO UNSATURATED BOND OF HYDROCARBON, I.E., HYDROGENATION
.With subsequent diverse conversion
..Dehydrogenation
..Isomerization
..With preliminary diverse conversion
..Polymerization of olefins only
..Molecular weight reduction
..By hydrogen transfer from other hydrocarbon
..Hydrocarbon is contaminant in desired hydrocarbon
..Hydrogenation of diolefin or triple bond
...Using catalyst or support of defined structure, surface area, or pore size
...Using catalyst and additional nonmetal material
...Using S or Group I or II transition metal-containing catalyst
..With temperature or concentration gradient in reactor or specified provision for heating, cooling, or reactor control
..With preliminary treatment of feed or plural separation procedures
..Plural hydrogenation stages
..Hydrocarbon is aromatic
..Using alkaline metal material
..To produce polycyclic
..Using Group VIII metal-containing catalyst with additional nonhydrocarbon agent
...Co, Fe, or Ni
..Partial
..Hydrogen supplied by water or alcohol
..Using Group VIII metal-containing catalyst
..Co, Fe, or Ni
..Using transition metal-containing catalyst
..Elemental Co, Fe, or Ni
.Group VIII metal with additional nonhydrocarbon agent or complexed with hydrocarbon

PLURAL PARALLEL SYNTHESSES

.Using same catalyst, solvent, inert heat carrier, or component thereof

.With blending of products from two parallel reactions

..And passage to further reaction

PLURAL SERIAL DIVERSE SYNTHESSES

.One synthesis rehabilitates catalyst for other, e.g., by alkylation with ester, etc.

.Same catalyst, solvent, or component thereof used in both syntheses

..Entire catalyst composition

.With hydrocarbon effluent stream splitting for recycle to different syntheses

.With hydrocarbon recycle from later to earlier synthesis

..Earlier synthesis is condensation or alkyl transfer

.To produce alicyclic

..Having unsaturated ring

..Polycyclic

..Having plural side-chains

..Including an aromatization step

..Including an alkylation step

..To produce unsaturated

..Having triple bond

..Polyolefin

...From O compound feed or intermediate

..Including displacement from nonhydrocarbon by entire hydrocarbon molecule, e.g., growth reaction, etc.

..Including polymerization of olefin

...And a preliminary unsaturation step, e.g., cracking, dehydrogenation, etc.

..Including alkylation to produce branched-chain paraffin

..And preliminary isomerization or polymerization

ALICYCLIC COMPOUND SYNTHESIS

.Carotene or derivative

.Adamantane or derivative

..By shift, opening, or removal of shared-carbon ring

..Cyclopentadiene from its polymer

..Camphene or ten-C monocyclic from polycyclic, e.g., terpene isomerization, etc.

..Camphene from pinene or derivative

..From nonhydrocarbon

..Nonring moiety becomes ring

..Halogen containing

..Polycyclic product

..By condensation, e.g., Diels-Alder reaction, etc.

..Dimerizing a cycloolefin

..By double-bond shift in side-chain

..By condensive ring expansion, e.g., "olefin dismutation", etc.

..From nonring hydrocarbon

..Alkadiene

...Using refractory-group metal-containing catalyst

....With nonmetal element or compound

...Using Co-, Fe-, or Ni-containing catalyst

....With nonmetal organic compound

..By ring expansion or contraction

..Using Al group metal halide catalyst

...With added hydrocarbon complex or nonhydrocarbon organic agent

..Using metal-containing catalyst

..By alkylation or alkyl transfer

..Feed has side-chain

..By double-bond shift

..Using organometallic compound, P- or S-containing catalyst

..By dehydrogenation

..Using H acceptor

AROMATIC COMPOUND SYNTHESIS

..With measuring, sensing, testing, or synthesis operation control responsive to diverse condition

..Exploiting or conserving heat of quenching, reaction, or regeneration
Using apparatus of recited composition

By ring expansion or contraction

Using transition metal-containing catalyst

By dimerization of vinyl aromatic

By ring formation from nonring moiety, e.g., aromatization, etc.

Nonhydrocarbon feed

Aromatic or carbonyl-containing reactant

Using metal-containing catalyst

Plural stage, with moving catalyst or with specified flow rate or procedure

With preliminary treatment of feed or plural separation procedures

Using metal-free H acceptor

Product compound has more C atoms than feed compound, e.g., cyclic polymerization, etc.

Triple bond-containing feed

Using transition metal-containing catalyst

Using transition metal-containing catalyst

Group VIII noble metal

Group VI metal

With alkaline metal compound

By condensation of entire cyclic molecules or entire hydrocarbyl moieties thereof, e.g., polymerization, etc.

With plural separation procedures

Plural stage or with preliminary treatment of feed

Ring carbon of one molecule joined to ring carbon of other

Through residue of nonring molecule, e.g., acetylene, etc.

Arylene bond formed using metal-containing agent

Nonring moiety of one molecule bonded to nonring moiety of other, e.g., polystyrene, etc.

Using transition metal-containing catalyst

Polycyclic product or with olefinic unsaturation in feed

Using H acceptor or Cr-, Mo-, or W-containing catalyst

Using noble metal catalyst

Polycyclic product or from nonhydrocarbon feed

O-containing feed

By condensation using metal-containing catalyst

By C removal, e.g., cracking, etc.

Using halogen or S

Using elemental O

Using metal oxide, sulfide, or salt

By condensation of entire molecules or entire hydrocarbyl moieties thereof, e.g., alkylation, etc.

With specified flow rate through reactor or flow procedure within or at entrance to reactor

Plural stage or with plural separation procedures

With plural alkylation stages

With plural separation procedures

Including dissolving or solids formation or separation

Attachment to side-chain, e.g., telomerization, etc.

Resulting side-chain has less than four C atoms

Feed other than hydrocarbon, hydroxy, monohalide, or ether

Resulting side-chain restricted to more than five C atoms, e.g., "detergent alkylate", etc.

Using halogen-containing catalyst
..Using organometallic compound catalyst
..Using S-containing catalyst
..Using Al halide catalyst
...And additional metal-containing or nonhalide inorganic agent
...Complexed, e.g., sludge, etc., or with additional extraneous organic agent
..Using halogen-containing catalyst
...Alumina containing
...HF
...B trifluoride in a complex or with additional nonhydrocarbon agent
..Using P-containing catalyst
..Using metal, metal oxide, or hydroxide catalyst
...Noncrystalline, and containing Al and Si
...From nonhydrocarbon feed
...By alkyl or aryl transfer between molecules, e.g., disproportionation, etc.
...Product is polycyclic, of increased side-chain length, or a specific position polyalkyl benzene isomer
...Using Al or B halide catalyst
...Meta- or 1,3,5-alkyl benzene
...Plural compounds of different weight become midweight compound, i.e., averaging
...Using crystalline aluminosilicate catalyst
...By ring opening, removal, degradation, or shift on chain or other ring
...By isomerization
...With plural separation steps
...Including a crystallization step
...Using metal oxide- or sulfide-containing catalyst
...Crystalline aluminosilicate
...Pt-group metal containing
...By dealkylation
...Polycyclic
...Using catalyst and H
...Using extraneous agent in reaction zone, e.g., catalyst, etc.
...And steam
...And H
...Transition metal-containing catalyst

UNSATURATED COMPOUND SYNTHESIS
...With measuring, sensing, testing, or synthesis operation control responsive to diverse condition
...By addition of entire unsaturated molecules, e.g., polymerization, etc.
...With heat conservation or using apparatus of recited composition
...With specified procedure for recycle of nonhydrocarbon
...Triple-bond product
...Poly-double-bond product
...More than two double bonds, e.g., diene polymerization, etc.
...Of definite molecular weight, e.g., dimer, etc.
...Using P-containing catalyst
...Definite molecular weight product, e.g., dimer, etc.
...Using catalyst containing metal bonded to or complexed with C, C-containing compound, or H
...Al-and transition metal-containing
...N-, P-, or S-containing
...Metal phosphate

October 2007
529 ..., P compound on solid carrier, e.g., "solid phosphoric acid", etc.
530 ... Catalyst containing inorganic metal
531 .... Group VIII metal
532 .... Al
533 .... Al oxide, e.g., aluminoisilicate, etc.
534 ... Triple-bond product
535 ... With heat conservation or using solid inert heat carrier, e.g., regenerative furnace, etc.
536 ... With carrier movement through reaction zone
537 ... Using apparatus of recited composition
538 ... From organic nontriple-bond feed
539 ... By thermal conversion of hydrocarbon, i.e., thermolysis
540 ... By partial combustion of hydrocarbon
541 ... Using extraneous nonreactant, e.g., diluent, catalyst, etc.
600 ... Product having more than two double bonds
601 ... Diolefin product
602 ... With heat conservation or using solid inert heat carrier, e.g., regenerative furnace, etc.
603 ... From nonhydrocarbon feed
604 ... Heterocyclic
605 ... Using P-containing catalyst
606 ... O-containing
607 ... Plural O-containing organic compounds
608 ... With unsaturated hydrocarbon in feed
609 ... Alcohol
610 ... Diol
611 ... Using P-containing catalyst
612 ... Halogen-containing feed using extraneous nonhydrocarbon agent
613 ... By C content reduction, e.g., cracking, etc.
614 ... Isoprene product per se
615 ... Butadiene product per se
616 ... By dehydrogenation
617 ... Using nonhydrocarbon acceptor
618 ... Halogen-containing acceptor with elemental O
619 ... Halogen is I only
620 ... Halogen is Cl only
621 ... Elemental O acceptor
622 ... With P containing extraneous agent
623 ... Sn-containing
624 ... With metal oxide or hydroxide extraneous agent
625 ... Ferrite
626 ... Oxide of As, Bi, or Sb
627 ... Using extraneous nonhydrocarbon agent, e.g., catalyst, etc.
628 ... Moving catalyst or plural stage
629 ... Transition metal oxide or sulfide agent
630 ... Cr, Mo, or W
631 ... With other transition metal salt agent
632 ... Plural stage or with specified quench or separation procedure
633 ... With heat conservation or using solid or molten inert heat carrier, e.g., regenerative furnace, etc.
634 ... With carrier movement through reaction zone or use in quenching
635 ... Using apparatus of recited composition
636 ... By displacement of hydrocarbon radical by hydrocarbon molecule
637 ... From nonhydrocarbon feed
638 ... Alcohol, ester, or ether
639 ... Using metal oxide catalyst
640 ... Halogen-containing
641 ... Using acid, metal oxide, or salt catalyst
642 ... Using Re-containing catalyst
643 ... By alkyl transfer, e.g., disproportionation, etc.
644 ... Plural stage or averaging
645 ... Using organic extraneous agent
646 ... Using catalyst containing Mo, Re, or W and another transition metal
647 ... Using Re-containing catalyst
648 ... By C content reduction, e.g., cracking, etc.
649 ... Isobutylene product per se
650 ... Ethylene product per se
651 ... Using catalyst
652 ... Using O (partial combustion) or steam
CLASS 585 CHEMISTRY OF HYDROCARBON COMPOUNDS

653 . Using catalyst
654 . By dehydrogenation
655 . With plural separation procedures applied to effluent or effluent component
656 . Using acceptor, e.g., hydrogen-exchange disproportionation, etc.
657 ... Halogen-containing acceptor
658 ... Elemental O or S acceptor with extraneous nonhydrocarbon agent, e.g., catalyst, etc.
659 . Plural stages or with catalyst movement
660 . Using extraneous agent containing Pt-group metal and non-Pt-group metal
661 . Using transition metal oxide, sulfide, or salt
662 ... Cr, Mo, or W
663 ... With other transition metal
664 . By double-bond-shift isomerization
665 . Using organometallic catalyst
666 . Using aluminosilicate catalyst
667 . Using P-containing catalyst
668 . Using S-containing catalyst
669 . Using halogen-containing catalyst
670 . Using transition metal-containing catalyst
671 . By skeletal isomerization

SATURATED COMPOUND SYNTHESIS
700 . With measuring, sensing, testing, or synthesis operation control responsive to diverse condition
702 . Synthesis catalyst, solvent, or component thereof used as agent in hydrocarbon purification or separation
703 . By interaction with nonhydrocarbon
704 . With control of water content of recycled catalyst
705 . With removal of catalyst component from metal-hydrocarbon complex
706 . With addition of reactor effluent component to catalyst as agent for rehabilitation or recycle

707 . With specified procedure for adding fresh makeup catalyst component to complex (sludge), support, or inert contact material
708 . By alkyl transfer, e.g., disproportionation, etc.
709 . By condensation of a paraffin molecule with an olefin-acting molecule, e.g., alkylation, etc.
710 . With catalyst rehabilitation by reversion from different compound or HF complex
711 . Including nonhydrocarbon reactant
712 . With removal of organic halogen contaminant
713 ... Using solid catalyst or sorbent
714 . With introduction of same material at more than two serially spaced points of reaction zone system
715 . With autorefrigeration
716 . Plural alkylation stages
717 . With preliminary treatment of feed
718 . With coalescing or sorption of, or addition of specific agent to, effluent or effluent component
719 . With plural separation procedures applied to effluent or effluent component
720 . With specified flow procedure within or at entrance to reactor, e.g., by use of named mixing device, etc.
721 . Using extraneous nonhydrocarbon agent
722 ... Aluminosilicate or organometallic
723 ... HF
724 ... With additional nonhydrocarbon agent
725 ... B-, N-, or P-containing
726 ... B-containing
727 ... Al halide
728 ... With additional nonhydrocarbon agent
729 ... H halide
730 ... S-containing
731 ... Sulfuric acid with additional nonhydrocarbon agent
...O-containing from nonhydrocarbon feed by isomerization using temperature gradient or material concentration gradient or introduction of same material at more than two serially spaced points of reaction zone system.

Plural isomerization stages with preliminary treatment of paraffin feed. Using Al halide catalyst with additional metal halide. With S-containing or free or organic halogen agent. With metal oxide or elemental carbon, e.g., supported, etc. With added organic agent or in complex with organic material. With inorganic material other than halogen-containing.

Using halogen-containing catalyst with alumina. Using metal oxide or hydroxide catalyst including free metal. By C content reduction, e.g., hydrocracking, etc.

PURIFICATION, SEPARATION, OR RECOVERY

By conversion of solid to gas, e.g., sublimation, etc., or by melting or squeezing out liquid from solid natural source. By plural serial diverse separations. To recover alicyclic. To recover aromatic. Xylene or ethylbenzene. Having unsaturated or one-C side-chain. Including steps of distillation and agent addition.

Agent contains N, carbonyl, or dihydroxy moiety. To recover unsaturate. Diolefin. Including treatment with S-containing agent. By cooling of liquid to obtain solid, e.g., crystallization, etc.

Using specified holding time or specified cooling rate. With treatment of mother liquor after crystal separation. With dissolving or plural serial crystallizations. With addition of extraneous material. Before crystal formation. By membrane, selective septum, or coalescer. Aromatic permeate. By contact with solid sorbent. With measuring, sensing, testing, or recycle of sorbate to same sorption zone. Plural serial sorptions. Sorbate is nonhydrocarbon or chemically undetermined component, e.g., "color-former", etc.

With fractional or linear desorption, e.g., chromatography, etc. With specified sorbent rehabilitation procedure or agent, e.g., desorbent, etc. Cyclic sorbate. Aromatic separated from other aromatic. Unsaturated sorbate. Sorbent is or contains organic cyclic sorbate. Polymerization and depolymerization. By addition of extraneous agent, e.g., solvent, etc. With contact procedure involving particular apparatus or more than two moving streams.

With fractional disengagement from agent by use of other agent.
Different, sequentially used agents

One agent is a diluent, i.e., nonselective solvent or heat exchange material

Resolution of feed into more than two different components

Later agent disengages earlier, e.g., decomplexing agent, etc.

Later agent is hydrocarbon

HF and another fluoride

By interaction with monoolefin

Ammoniacal, e.g., Cu ammonium acetate (CAA), etc.

Triple-bond compound separated

Plural metal or nonhalide Cu compound-containing

Cu halide with added material other than water

Group VII or VIII transition metal-containing, e.g., Werner complex formation, etc.

Group III nontransition element-containing

Al

Alkaline metal-containing

Elemental metal, oxide, or hydroxide

Metal-containing

S containing

S dioxide, sulfolane, or sulfolene

Sulfuric acid

Interaction with tertiary olefin

N-containing

Ammonia

Carbonyl moiety-containing

Interaction with aromatic

Organic agent

Heterocyclic or polymeric

Acid, anhydride, ester or ether

Hydrocarbon

Inorganic O-containing agent

**CROSS-REFERENCE ART COLLECTIONS**

**CATALYST AND RECYCLE CONSIDERATIONS**

Rehabilitation of H acceptor

With recycle, rehabilitation, or preservation of solvent, diluent, or mass action agent

Recycle of solvent and catalyst

With hydrocarbon recycle to control synthesis reaction, e.g., by cooling, quenching, etc.

Catalyst rehabilitation by reversion from different compound

By-product conversion to feed

Catalyst preservation or manufacture (e.g., activation, etc.) before use

**HEAT CONSIDERATIONS**

Exploiting or conserving heat of quenching, reaction, or regeneration

Introducing, maintaining, or removing heat by atypical procedure

Molten material

Electric

Phase change, e.g., evaporation, etc.

**APPARATUS CONSIDERATIONS**

Using apparatus of recited composition

Using recited apparatus structure

Reactor fluid manipulating device

At reactor inlet

Reactor shape or disposition

Dimension or proportion

Plurality or verticality

**SPECIAL CHEMICAL CONSIDERATIONS**

Process including synthesis of nonhydrocarbon intermediate

Metal-, Si-, B-, or P-containing, e.g., Grignard, etc.

Carboxyl-containing, e.g., acid, etc.

N-containing

Chalcogen-containing
Halogen-containing
Opening of hydrocarbon ring
Isotope exchange process
Production of carbonium ion or hydrocarbon free-radical
Synthesis from methane or inorganic carbon source, e.g., coal, etc.
Radiation-resistant composition
Product is drying oil
Product is waxy polymer
Terpene manufacture or recovery

MISCELLANEOUS CONSIDERATIONS
Prevention or removal of corrosion or solid deposits
Reaction start-up procedure
Reaction stopping or retarding
Pulsed, sonic, or plasma process
Exploiting mass-action phenomenon
Specified mixing procedure
Condition-responsive control and related procedures in alicyclic synthesis and purification

FOREIGN ART COLLECTIONS
FOR 000 CLASS-RELATED FOREIGN DOCUMENTS