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# **TOXIC SUBSTANCES CONTROL ACT (TSCA)**

## **PL 94 — 469**

### **CANDIDATE LIST OF CHEMICAL SUBSTANCES**

#### **ADDENDUM I**

**GENERIC TERMS COVERING PETROLEUM REFINERY PROCESS STREAMS**

**JANUARY 1978**

**U.S. ENVIRONMENTAL PROTECTION AGENCY**



**OFFICE OF TOXIC SUBSTANCES  
WASHINGTON, D.C. 20460**

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GUIDELINES USED IN DRAFTING THE LIST OF  
REFINERY PROCESS STREAMS AND DEFINITIONS  
TO MEET THE TOXIC SUBSTANCES CONTROL ACT  
INVENTORY REPORTING REQUIREMENTS

GENERAL

The generic terms and definitions are consistent with nomenclature in the American Petroleum Institute Thesaurus, general petroleum chemistry and literature of the American Gas Association and speciality product manufacturers. Local or colloquial names for streams are not used.

Each definition identifies the stream's source, general composition, carbon number, boiling range or other appropriate physical characteristic, and predominant hydrocarbon type. Inspecific instances the definition states that the stream contains benzene or 4- to 6- membered condensed ring aromatic hydrocarbons at certain concentrations.

PROCESS DEFINITIONS

All processes known to be in use by the petroleum refining industry are included in the terms and definitions. No attempt was made to differentiate between the numerous variations within each general type of process or between severity levels.

For example, in solvent refining, numerous solvents are used such as furfural, phenol, sulfur dioxide or methylpyrrolidone. While there are certain advantages for using each solvent, all accomplish essentially the same thing; that is, separation of the more aromatic type hydrocarbons from the more paraffinic types. As further examples, in the catalytic cracking process the catalyst may be fluidized or in a fixed bed; in clay treating the process is usually done batch-wise in a contacting operation, but is continuous in a percolation operation; and in sweetening processes certain chemicals such as sodium hydroxide, sodium hypochlorite, or oxidative sweetening agents are used to remove acidic or sulfur-containing materials. These rather broad variations within a process category do not greatly alter the general, overall composition of products, however.

STREAM DEFINITIONS

The streams of each process were selected and defined on the basis of general practice in the industry. No attempt was made to cover all possible combinations of sequential processing. For example, a Light Straight Run Naphtha may be subsequently hydrotreated, then catalytically reformed, followed by solvent refining before use as a gasoline blending stock or use as charge stock to petrochemical manufacture or as a solvent naphtha. Similarly, a Heavy Paraffinic Distillate

designated for use as a lubricating oil blending stock may subsequently be processed by any combination of processes including solvent refining, solvent dewaxing, hydrotreating, acid treating or clay treating. Thus, depending on the sequence used and the specific properties desired in the lube stock, the final product stream may be obtained after solvent dewaxing in one case, after hydrotreating in another case, or after clay treating in still another case. Accordingly, each process stream is singularly identified and distinctly described regardless of prior processing experienced by the charge stock to that process.

Refinery gas streams, pure streams of individual hydrocarbons, and chemical substances such as hydrogen sulfide, ammonia, carbon monoxide and carbon dioxide normally produced and separated as by-products or waste products are not included in the API definitions. Those chemical substances are included in the Candidate List.

It is suggested that gaseous and liquid hydrocarbon streams with a single hydrocarbon as the major component be listed by the major component's name. For example, a gas stream that contains say 85% isobutylene and the remainder a mixture of other C<sub>4</sub>'s would be listed as "isobutylene." However, a "mixed hexanes" stream with about equal amounts of four or five C<sub>6</sub> isomers would be reported on Form C along with its general or typical composition.

The "Light Naphtha Solvent Extract" is the extract obtained from solvent extraction of "Light Catalytic Reformed Naphtha." It contains large amounts of benzene and alkylbenzenes such as toluene and the xylenes, and is often referred to as "BTX stream." If separated by distillation or other means into its individual components such as benzene, toluene and xylenes, these would be listed separately on the Inventory List. Similarly, if a mixed xylene stream is separated into the three isomers, the individual isomers would be listed. Any recombination of two or more components would be a "mixture," and therefore not listed.

The "Aliphatic Solvent Naphtha" (Light, Medium and Heavy) and "Aromatic Solvent Naphtha" (Light and Heavy) adequately cover the solvents described by ASTM D235, D484, D838 and D2604, as well as Groups 1,2 and 3 petroleum solvents described by The Solvents and Chemicals Company booklet (published in 1972 by Central Solvents & Chemicals Co., Chicago, Illinois 60638).

## PRESENCE OF BENZENE AND "POLYNUCLEAR AROMATICS"

Benzene and "polynuclear aromatic hydrocarbons" (PNA) are usually present in most petroleum crude oils, in variable amounts depending on crude source. Both of these chemical substances are further concentrated as their respective boiling range streams move from crude distillation through additional refinery processes, and both are also produced by cyclization, condensation and/or dealkylation reactions in certain refinery processes. At the same time, certain processes such as hydrocracking tend to destroy ring structures, especially condensed polynuclear ring structures.

The Environmental Protection Agency requested the API Task Force on TSCA to identify those streams in which benzene and "PNAs" are most concentrated. In accordance with that request, three streams have been identified relative to benzene content and fifteen streams have been identified relative to "PNA" content. These identities are consistent with available information; however, it is recognized that some of the streams so identified may often contain less than the indicated concentrations.

With regard to PNA content, the definitive statement that has been added is expressed in terms of 4- to 6- membered condensed ring aromatic hydrocarbons. There are two main reasons for this: First, the term "polynuclear aromatic" is indefinite and non-specific. It includes a wide range of multi-ring aromatics, whether condensed or not, that have little actual significance from a health concern standpoint. Second, available evidence from animal studies indicates that potential carcinogenic activity is limited to 4-, 5-, and 6- membered condensed ring aromatic hydrocarbons. The observed animal carcinogenicity is limited to a relatively few specific 4- to 6- membered condensed ring aromatics, and the relation between this evidence from animal studies and humans has not been established. However, in order to indicate areas of potential concern within the broad terminology "PNA," those streams which are "likely to contain 5 weight percent or more 4- to 6- membered condensed ring aromatic hydrocarbons" have been identified.

## SPECIAL CATEGORY STREAMS

Crude oils vary widely in composition and therefore in the distribution of the various boiling fractions and hydrocarbon types present. No attempt was made to differentiate between paraffinic, naphthenic and asphaltic crudes, or their various derivatives except in the lube oil fractions where light and heavy "paraffinic distillate" and "naphthene distillate" are identified. This distinction was made because processing and end use of these type fractions often differ rather

significantly.

The viscosity differentiation (100 SUS at 100°F) between "light" and "heavy" paraffinic and naphthenic distillates was made consistent with the definition-classification established by the Consumer Products Safety Commission.

Some seeming inconsistencies in the definitions in carbon number range and boiling range for similar terms reflect differences in operating practice. For example, the carbon number range of straight run middle distillate is C<sub>11</sub> through C<sub>20</sub> while that of solvent refined middle distillate is C<sub>11</sub> through C<sub>25</sub>. In practice, these ranges represent actual observations prevalent in the industry, and probably represent admixing of various batches and fractions in intra-refinery operations.

If streams are listed only as "light" and "heavy," those refineries producing "full range" streams would report these by listing both "light" and "heavy" in equal amounts. Those producing "intermediate" streams should report this separately if its carbon number and boiling point ranges are not broad enough to be within the overall span of "light" and "heavy" limits.

Kerosine and Kerosene are often used interchangeably in and out of the industry. Both have the same CAS registry number, but have different EPA identification numbers.

Paraffin wax includes "scale wax" and "deoiled wax."

#### EXCLUSIONS

Natural gas and crude oil as they issue from the earth are automatically included as "Naturally Occurring Chemical Substances" under Section 710.4(b) of the inventory reporting regulations, and, therefore, are excluded from the API list of definitions. Waste byproducts separated from either natural gas or crude oil and having no commercial purpose are excluded under Section 710.4(d)(2) of the regulations. Other waste products such as flare gases, slop oil, sediments, water, spent catalysts, also are excluded under Section 710.4(d)(2), or may be optionally reported in accordance with the added "note" to Section 710.4(d)(2).

## REFERENCES

The following references were used:

API Thesaurus, 14th Ed. Jan. 1977

The Petroleum Refining Industry, EPA Order  
#5-02-5609B

Petroleum Refinery Engineering, W. L. Nelson,  
McGraw-Hill, New York City

Progress in Petroleum Technology, American  
Chemical Society, 1951, Washington, D.C.

Plus:

Operating practices generally followed by the  
petroleum refining and specialty products  
industries.

\* \* \* \* \*

Definitions

Of Generic Terms

Covering Petroleum Refining

Intermediate and Final

Process Streams

\* \* \* \* \*



## PETROLEUM PRODUCTION

Raw Natural Gas Liquid Mix (Petroleum)    [\*64747-48-6]    F000-0176

A complex combination of hydrocarbons separated as a liquid from natural gas in a gas recycling plant by processes such as refrigeration or absorption. It consists mainly of saturated aliphatic hydrocarbons having carbon numbers in the range of C<sub>2</sub> through C<sub>8</sub>.

Natural Gas Condensate (Petroleum)    [\*64747-47-5]    F000-0281

A complex combination of hydrocarbons separated as a liquid from natural gas in a surface separator by retrograde condensation. It consists mainly of hydrocarbons having carbon numbers predominantly in the range of C<sub>2</sub> to C<sub>20</sub>. It is a liquid at atmospheric temperature and pressure.

Natural Gasoline (Petroleum)    [\*8006-67-9]    F000-0399

A complex combination of hydrocarbons separated from natural gas by processes such as refrigeration or absorption. It consists predominantly of saturated aliphatic hydrocarbons having carbon numbers predominantly in the range of C<sub>4</sub> through C<sub>8</sub> and boiling in the range of approximately minus 20°C to 120°C (-4°F to 248°F).

## CRUDE OIL DISTILLATION STREAMS

Light Straight Run Naphtha (Petroleum)    [\*64747-46-4]    F000-0417

A complex combination of hydrocarbons produced by distillation of crude oil. It consists predominantly of aliphatic hydrocarbons having carbon numbers predominantly in the range of C<sub>4</sub> through C<sub>10</sub> and boiling in the range of approximately minus 20°C to 180°C (-4°F to 356°F).

Heavy Straight Run Naphtha (Petroleum)    [\*64747-47-9]    F000-0531

A complex combination of hydrocarbons produced by distillation of crude oil. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>6</sub> through C<sub>12</sub> and boiling in the range of approximately 65°C to 230°C (149°F to 446°F).

Full Range Straight Run Naphtha (Petroleum)    [\*64747-42-0]    F000-0646

A complex combination of hydrocarbons produced by distillation of crude oil. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>4</sub> through C<sub>11</sub> and boiling in the range of approximately minus 20°C to 220°C (-4°F to 428°F).

Straight Run Kerosine (Petroleum) [\*8008-20-6] F000-0753

A complex combination of hydrocarbons produced by the distillation of crude oil. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>9</sub> through C<sub>16</sub> and boiling in the range of approximately 150°C to 290°C (320°F to 554°F).

Straight Run Middle Distillate (Petroleum) [\*64747-44-2] F000-0864

A complex combination of hydrocarbons produced by the distillation of crude oil. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>11</sub> through C<sub>20</sub> and boiling in the range of 205°C to 345°C (401°F to 653°F).

Straight Run Gas Oil (Petroleum) [\*64747-43-7] F000-0984

A complex combination of hydrocarbons produced by the distillation of crude oil. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>11</sub> through C<sub>25</sub> and boiling in the range of approximately 205°C to 400°C (401°F to 752°F).

Atmospheric Tower Residuum (Petroleum) [\*64747-45-3] F000-1071

A complex residuum from the atmospheric distillation of crude oil. It consists of hydrocarbons having carbon numbers predominantly greater than C<sub>20</sub> and boiling above approximately 350°C (662°F). This stream is likely to contain 5 wt. % or more of 4- to 6- membered condensed ring aromatic hydrocarbons.

Vacuum Tower Condensate (Petroleum) [\*64747-49-7] F000-1186

A complex combination of hydrocarbons produced as the lowest boiling stream in the vacuum distillation of the residuum from atmospheric distillation of crude oil. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>11</sub> through C<sub>25</sub> and boiling in the range of approximately 205°C to 400°C (401°F to 752°F).

Light Paraffinic Distillate (Petroleum) [\*64747-50-0] F000-1291

A complex combination of hydrocarbons produced by vacuum distillation of the residuum from atmospheric distillation of crude oil. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>15</sub> through C<sub>30</sub> and produces a finished oil with a viscosity of less than 100 SUS at 100°F (19cSt at 40°C). It contains a relatively large proportion of saturated aliphatic hydrocarbons normally present in this distillation range of crude oil.

Heavy Paraffinic Distillate (Petroleum)    [\*6474L-5L-1]    F000-1316

A complex combination of hydrocarbons produced by vacuum distillation of the residuum from atmospheric distillation of crude oil. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>20</sub> through C<sub>50</sub> and produces a finished oil with a viscosity of at least 100 SUS at 100°F (19cSt at 40°C). It contains a relatively large proportion of saturated aliphatic hydrocarbons.

Light Naphthenic Distillate (Petroleum)    [\*6474L-52-2]    F000-1425

A complex combination of hydrocarbons produced by vacuum distillation of the residuum from atmospheric distillation of crude oil. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>15</sub> through C<sub>30</sub> and produces a finished oil with a viscosity of less than 100 SUS at 100°F (19cSt at 40°C). It contains relatively few normal paraffins.

Heavy Naphthenic Distillate (Petroleum)    [\*6474L-53-3]    F000-1540

A complex combination of hydrocarbons produced by vacuum distillation of the residuum from atmospheric distillation of crude oil. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>20</sub> through C<sub>50</sub> and produces a finished oil with a viscosity of at least 100 SUS at 100°F (19cSt at 40°C). It contains relatively few normal paraffins.

Light Vacuum Gas Oil (Petroleum)    [\*6474L-58-8]    F000-1658

A complex combination of hydrocarbons produced by the vacuum distillation of the residuum from atmospheric distillation of crude oil. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>13</sub> through C<sub>30</sub> and boiling in the range of approximately 230°C to 450°C (446°F to 842°F).

Heavy Vacuum Gas Oil (Petroleum)    [\*6474L-57-7]    F000-1763

A complex combination of hydrocarbons produced by the vacuum distillation of the residuum from atmospheric distillation of crude oil. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>20</sub> through C<sub>50</sub> and boiling in the range of approximately 350°C to 600°C (662°F to 1112°F). This stream is likely to contain 5 wt. % or more of 4- to 6- membered condensed ring aromatic hydrocarbons.

Vacuum Residuum (Petroleum)    [\*6474L-56-6]    F000-1877

A complex residuum from the vacuum distillation of the residuum from atmospheric distillation of crude oil. It consists of hydrocarbons having carbon numbers predominantly greater than C<sub>34</sub> and boiling above approximately 495°C (923°F).

## CATALYTIC CRACKING STREAMS

### Light Catalytic Cracked Naphtha (Petroleum)    [\*64747-55-5]    F000-1996

A complex combination of hydrocarbons produced by the distillation of products from a catalytic cracking process. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>4</sub> through C<sub>11</sub> and boiling in the range of approximately minus 20°C to 190°C (-4°F to 374°F). It contains a relatively large proportion of unsaturated hydrocarbons.

### Heavy Catalytic Cracked Naphtha (Petroleum)    [\*64747-54-4]    F000-2085

A complex combination of hydrocarbons produced by a distillation of products from a catalytic cracking process. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>6</sub> through C<sub>12</sub> and boiling in the range of approximately 65°C to 230°C (148°F to 446°F). It contains a relatively large proportion of unsaturated hydrocarbons.

### Light Catalytic Cracked Distillate (Petroleum)    [\*64747-59-9]    F000-2101

A complex combination of hydrocarbons produced by the distillation of products from a catalytic cracking process. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>9</sub> through C<sub>25</sub> and boiling in the range of approximately 150°C to 400°C (302°F to 752°F). It contains a relatively large proportion of bicyclic aromatic hydrocarbons.

### Intermediate Catalytic Cracked Distillate (Petroleum)    [\*64747-60-2]    F000-2214

A complex combination of hydrocarbons produced by the distillation of products from a catalytic cracking process. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>11</sub> through C<sub>30</sub> and boiling in the range of approximately 205°C to 450°C (401°F to 842°F). It contains a relatively large proportion of tricyclic aromatic hydrocarbons.

### Heavy Catalytic Cracked Distillate (Petroleum)    [\*64747-67-3]    F000-2324

A complex combination of hydrocarbons produced by the distillation of products from a catalytic cracking process. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>15</sub> through C<sub>35</sub> and boiling in the range of approximately 260°C to 500°C (500°F to 932°F). This stream is likely to contain 5 wt. % or more of 4- to 6- membered condensed ring aromatic hydrocarbons.

### Catalytic Cracked Clarified Oil (Petroleum)    [\*64747-62-4]    F000-2433

A complex combination of hydrocarbons produced as the residual fraction from distillation of the products from a catalytic cracking process. It consists of hydrocarbons having carbon numbers predominantly greater than C<sub>20</sub> and boiling above approximately 350°C (662°F). This stream is likely to contain 5 wt. % or more of 4- to 6- membered condensed ring aromatic hydrocarbons.

## CATALYTIC REFORMING STREAMS

Light Catalytic Reformed Naphtha (Petroleum) [\*6474L-63-5] F000-2557

A complex combination of hydrocarbons produced from the distillation of products from a catalytic reforming process. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>5</sub> through C<sub>11</sub> and boiling in the range of approximately 35°C to 190°C (95°F to 374°F). It contains a relatively large proportion of aromatic and branched chain hydrocarbons. This stream may contain 10 vol. % or more benzene.

Heavy Catalytic Reformed Naphtha (Petroleum) [\*6474L-68-0] F000-2662

A complex combination of hydrocarbons produced from the distillation of products from a catalytic reforming process. It consists of predominantly aromatic hydrocarbons having carbon numbers predominantly in the range of C<sub>7</sub> through C<sub>12</sub> and boiling in the range of approximately 90°C to 230°C (194°F to 446°F).

Catalytic Reformer Fractionator Residue (Petroleum) [\*6474L-67-9] F000-2771

A complex combination of hydrocarbons produced as the residual fraction from distillation of the product from a catalytic reforming process. It consists of predominantly aromatic hydrocarbons having carbon numbers predominantly in the range of C<sub>10</sub> through C<sub>25</sub> and boiling in the range of approximately 160°C to 400°C (320°F to 752°F). This stream is likely to contain 5 wt. % or more of 4- to 6-membered condensed ring aromatic hydrocarbons.

## ALKYLATION STREAMS

Light Alkylate Naphtha (Petroleum) [\*6474L-66-8] F000-2884

A complex combination of hydrocarbons produced by distillation of the reaction products of isobutane with monoolefinic hydrocarbons usually ranging in carbon numbers from C<sub>3</sub> through C<sub>5</sub>. It consists of predominantly branched chain saturated hydrocarbons having carbon numbers predominantly in the range of C<sub>7</sub> through C<sub>10</sub> and boiling in the range of approximately 90°C to 160°C (194°F to 320°F).

Heavy Alkylate Naphtha (Petroleum) [\*6474L-65-7] F000-2919

A complex combination of hydrocarbons produced by distillation of the reaction products of isobutane with monoolefinic hydrocarbons usually ranging in carbon numbers from C<sub>3</sub> to C<sub>5</sub>. It consists of predominantly branched chain saturated hydrocarbons having carbon numbers predominantly in the range of C<sub>9</sub> through C<sub>12</sub> and boiling in the range of approximately 150°C to 220°C (302°F to 428°F).

Full Range Alkylate Naphtha (Petroleum)    [\*64747-64-6]    F000-3093

A complex combination of hydrocarbons produced by distillation of the reaction products of isobutane with monoolefinic hydrocarbons usually ranging in carbon numbers from C<sub>3</sub> through C<sub>5</sub>. It consists of predominantly branched chain saturated hydrocarbons having carbon numbers predominantly in the range of C<sub>7</sub> through C<sub>12</sub> and boiling in the range of approximately 90°C to 220°C (194°F to 428°F).

Alkylate Distillate (Petroleum)    [\*64747-73-7]    F000-3113

A complex combination of hydrocarbons produced by distillation of the reaction products of isobutane with monoolefinic hydrocarbons usually ranging in carbon numbers from C<sub>3</sub> through C<sub>5</sub>. It consists of predominantly branched chain saturated hydrocarbons having carbon numbers predominantly in the range of C<sub>11</sub> through C<sub>17</sub> and boiling in the range of approximately 205°C to 320°C (401°F to 608°F).

POLYMERIZATION STREAMS

Polymerization Naphtha (Petroleum)    [\*64747-72-6]    F000-3227

A complex combination of hydrocarbons produced by the catalytic polymerization of a mixture rich in propylene or butylene. It consists predominantly of monoolefinic hydrocarbons having carbon numbers predominantly in the range of C<sub>6</sub> through C<sub>12</sub> and boiling in the range of approximately 65°C to 220°C (148°F to 428°F).

Viscous Polymer (Petroleum)    [\*64747-71-5]    F000-3331

A complex combination of hydrocarbons obtained from distillation of products from the polymerization of propylene or butylene. It has a carbon number range from C<sub>12</sub> upward and a boiling range from approximately 220°C (428°F) upward. The hydrocarbons are predominantly monoolefinic.

ISOMERIZATION STREAMS

Isomerization Naphtha (Petroleum)    [\*64747-70-4]    F000-3445

A complex combination of hydrocarbons obtained from catalytic isomerization of straight chain paraffinic C<sub>4</sub> through C<sub>6</sub> hydrocarbons. It consists predominantly of saturated hydrocarbons such as isobutane, isopentane, 2,2-dimethylbutane, 2-methylpentane, and 3-methylpentane.

## HYDROCRACKING STREAMS

Light Hydrocracked Naphtha (Petroleum) [\*64747-69-1] F000-3566

A complex combination of hydrocarbons from distillation of the products from a hydrocracking process. It consists predominantly of saturated hydrocarbons having carbon numbers predominantly in the range of C<sub>4</sub> through C<sub>10</sub>, and boiling in the range of approximately minus 20°C to 180°C (-4°F to 356°F).

Heavy Hydrocracked Naphtha (Petroleum) [\*64747-78-2] F000-3679

A complex combination of hydrocarbons from distillation of the products from a hydrocracking process. It consists predominantly of saturated hydrocarbons having carbon numbers predominantly in the range of C<sub>6</sub> through C<sub>12</sub>, and boiling in the range of approximately 65°C to 230°C (148°F to 446°F).

Light Hydrocracked Distillate (Petroleum) [\*64747-77-1] F000-3784

A complex combination of hydrocarbons from the distillation of the products from a hydrocracking process. It consists predominantly of saturated hydrocarbons having carbon numbers predominantly in the range of C<sub>10</sub> through C<sub>18</sub>, and boiling in the range of approximately 160°C to 320°C (320°F to 608°F).

Heavy Hydrocracked Distillate (Petroleum) [\*64747-76-0] F000-3898

A complex combination of hydrocarbons from the distillation of the products from a hydrocracking process. It consists predominantly of saturated hydrocarbons having carbon numbers in the range of C<sub>15</sub> through C<sub>25</sub>, and boiling in the range of approximately 260°C to 400°C (500°F to 752°F).

Hydrocracked Residuum (Petroleum) [\*64747-75-9] F000-3913

A complex combination of hydrocarbons produced as the residual fraction from distillation of the products of a hydrocracking process. It consists of hydrocarbons having carbon numbers predominantly greater than C<sub>20</sub> and boiling above approximately 350°C (662°F).

## THERMAL CRACKING STREAMS

Light Thermal Cracked Naphtha (Petroleum) [\*64747-74-8] F000-4016

A complex combination of hydrocarbons from distillation of products from a thermal cracking process. It consists predominantly of unsaturated hydrocarbons having carbon numbers predominantly in the range of C<sub>4</sub> through C<sub>8</sub> and boiling in the range of approximately minus 10°C to 130°C (14°F to 266°F).

Heavy Thermal Cracked Naphtha (Petroleum) [\*64747-83-9] F000-4121

A complex combination of hydrocarbons from distillation of the products from a thermal cracking process. It consists predominantly of unsaturated hydrocarbons having carbon numbers predominantly in the range of C<sub>6</sub> through C<sub>12</sub> and boiling in the range of approximately 65°C to 220°C (148°F to 428°F).

Light Thermal Cracked Distillate (Petroleum) [\*64747-82-8] F000-4234

A complex combination of hydrocarbons from the distillation of the products from a thermal cracking process. It consists predominantly of unsaturated hydrocarbons having carbon numbers predominantly in the range of C<sub>10</sub> through C<sub>22</sub> and boiling in the range of approximately 160°C to 370°C (320°F to 698°F).

Heavy Thermal Cracked Distillate (Petroleum) [\*64747-87-7] F000-4348

A complex combination of hydrocarbons from the distillation of the products from a thermal cracking process. It consists predominantly of unsaturated hydrocarbons having carbon numbers predominantly in the range of C<sub>15</sub> through C<sub>36</sub> and boiling in the range of approximately 260°C to 480°C (500°F to 896°F). This stream is likely to contain 5 wt. % or more of 4- to 6- membered condensed ring aromatic hydrocarbons.

Thermal Cracked Residuum (Petroleum) [\*64747-80-6] F000-4453

A complex combination of hydrocarbons produced as the residual fraction from distillation of the product from a thermal cracking process. It consists predominantly of unsaturated hydrocarbons having carbon numbers predominantly greater than C<sub>20</sub> and boiling above approximately 350°C (662°F). This stream is likely to contain 5 wt. % or more of 4- to 6- membered condensed ring aromatic hydrocarbons.

Coke (Petroleum) [\*64747-79-3] F000-4574

A solid material resulting from high temperature treatment of petroleum fractions. It consists of carbonaceous material and contains some hydrocarbons having a high carbon-to-hydrogen ratio.

SWEETENING PROCESS STREAMS

Sweetened Naphtha (Petroleum) [\*64747-87-3] F000-4685

A complex combination of hydrocarbons obtained by subjecting a petroleum naphtha to a sweetening process to convert mercaptans or to remove acidic impurities. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>4</sub> through C<sub>12</sub> and boiling in the range of approximately minus 10°C to 230°C (14°F to 446°F).



Sweetened Middle Distillate (Petroleum)    [\*64741-86-2]    F000-4790

A complex combination of hydrocarbons obtained by subjecting a petroleum distillate to a sweetening process to convert mercaptans or to remove acidic impurities. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>9</sub> through C<sub>20</sub> and boiling in the range of approximately 150°C to 345°C (302°F to 653°F).

SORPTION STREAMS

Normal Paraffins (Petroleum)    [\*64771-72-8]    F000-4812

A complex combination of normal paraffins obtained by a selective adsorption process using a solid adsorbent such as a molecular sieve. It consists of straight chain saturated hydrocarbons having carbon numbers predominantly in the range of C<sub>5</sub> through C<sub>20</sub> and boiling in the range of 35°C to 345°C (95°F to 653°F).

Sorption Process Raffinate (Petroleum)    [\*64741-85-1]    F000-4926

A complex combination of hydrocarbons remaining after removal of normal paraffins in a selective adsorption process. It consists predominantly of branched chain and cyclic hydrocarbons having carbon numbers predominantly in the range of C<sub>5</sub> through C<sub>25</sub> and boiling in the range of approximately 35°C to 400°C (95°F to 752°F).

SOLVENT REFINING STREAMS

Solvent Refined Light Naphtha (Petroleum)    [\*64741-84-0]    F000-5016

A complex combination of hydrocarbons obtained as the raffinate from a solvent extraction process. It consists predominantly of aliphatic hydrocarbons having carbon numbers predominantly in the range of C<sub>5</sub> through C<sub>11</sub> and boiling in the range of approximately 35°C to 190°C (95°F to 374°F).

Solvent Refined Heavy Naphtha (Petroleum)    [\*64741-92-0]    F000-5132

A complex combination of hydrocarbons obtained as the raffinate from a solvent extraction process. It consists predominantly of aliphatic hydrocarbons having carbon numbers predominantly in the range of C<sub>7</sub> through C<sub>12</sub> and boiling in the range of approximately 90°C to 230°C (194°F to 446°F).

Solvent Refined Middle Distillate (Petroleum)    [\*64741-91-9]    F000-5249

A complex combination of hydrocarbons obtained as the raffinate from a solvent extraction process. It consists predominantly of aliphatic hydrocarbons having carbon numbers predominantly in the range of C<sub>9</sub> through C<sub>20</sub> and boiling in the range of approximately 150°C to 345°C (302°F to 653°F).

Solvent Refined Gas Oil (Petroleum) [\*64747-90-8] F000-5354

A complex combination of hydrocarbons obtained as the raffinate from a solvent extraction process. It consists predominantly of aliphatic hydrocarbons having carbon numbers predominantly in the range of C<sub>11</sub> through C<sub>25</sub> and boiling in the range of approximately 205°C to 400°C (401°F to 752°F).

Solvent Refined Light Paraffinic Distillate (Petroleum) [\*64747-89-5] F000-5469

A complex combination of hydrocarbons obtained as the raffinate from a solvent extraction process. It consists predominantly of saturated hydrocarbons having carbon numbers predominantly in the range of C<sub>15</sub> through C<sub>30</sub> and produces a finished oil with a viscosity of less than 100 SUS at 100°F (19cSt at 40°C).

Solvent Refined Heavy Paraffinic Distillate (Petroleum) [\*64747-88-4] F000-5589

A complex combination of hydrocarbons obtained as the raffinate from a solvent extraction process. It consists predominantly of saturated hydrocarbons having carbon numbers predominantly in the range of C<sub>20</sub> through C<sub>50</sub> and produces a finished oil with a viscosity of at least 100 SUS at 100°F (19cSt at 40°C).

Solvent Refined Light Naphthenic Distillate (Petroleum) [\*64747-97-5] F000-5608

A complex combination of hydrocarbons obtained as the raffinate from a solvent extraction process. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>15</sub> through C<sub>30</sub> and produces a finished oil with a viscosity of less than 100 SUS at 100°F (19 cSt at 40°C). It contains relatively few normal paraffins.

Solvent Refined Heavy Naphthenic Distillate (Petroleum) [\*64747-96-4] F000-5713

A complex combination of hydrocarbons obtained as the raffinate from a solvent extraction process. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>20</sub> through C<sub>50</sub> and produces a finished oil with a viscosity of at least 100 SUS at 100°F (19cSt at 40°C). It contains relatively few normal paraffins.

Solvent Deasphalted Residual Oil (Petroleum) [\*64747-95-3] F000-5827

A complex combination of hydrocarbons obtained as the solvent soluble fraction from C<sub>3</sub> - C<sub>4</sub> solvent deasphalting of a residuum. It consists of hydrocarbons having carbon numbers predominantly higher than C<sub>25</sub> and boiling above approximately 400°C (752°F).

Solvent Decarbonized Heavy Paraffinic Distillate (Petroleum) [\*64747-94-2] F000-5932

A complex combination of hydrocarbons obtained as the solvent soluble fraction from C<sub>5</sub> - C<sub>7</sub> solvent decarbonizing of a heavy paraffinic distillate. It consists predominantly of hydrocarbons having carbon numbers predominantly in the range of C<sub>20</sub> through C<sub>50</sub> and produces a finished oil with a viscosity of at least 100 SUS at 100°F (19cSt at 40°C).

Solvent Decarbonized Heavy Naphthenic Distillate (Petroleum) [\*64741-93-1] F000-6021

A complex combination of hydrocarbons obtained as the solvent soluble fraction from C<sub>5</sub> - C<sub>7</sub> solvent decarbonizing of a heavy paraffinic distillate. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>20</sub> through C<sub>50</sub> and produces a finished oil with a viscosity of at least 100 SUS at 100°F (19cSt at 40°C). It contains relatively few normal paraffins.

Solvent Decarbonized Residual Oil (Petroleum) [\*64742-02-5] F000-6142

A complex combination of hydrocarbons obtained as the solvent soluble fraction from C<sub>5</sub> - C<sub>7</sub> solvent decarbonization of a residual oil. It consists of hydrocarbons having carbon numbers predominantly greater than C<sub>25</sub> and boiling above approximately 400°C (752°F).

Solvent Refined Residual Oil (Petroleum) [\*64742-01-4] F000-6256

A complex combination of hydrocarbons obtained as the solvent insoluble fraction from solvent refining of a residuum using a polar organic solvent such as phenol or furfural. It consists of hydrocarbons having carbon numbers predominantly higher than C<sub>25</sub> and boiling above approximately 400°C (752°F).

Solvent Refined Spent Lube Oil (Petroleum) [\*64742-00-3] F000-6361

A complex combination of hydrocarbons obtained as the solvent soluble fraction from C<sub>3</sub> - C<sub>5</sub> solvent refining of spent lube oil. It consists predominantly of hydrocarbons having carbon numbers predominantly in the range of C<sub>15</sub> through C<sub>50</sub>.

Light Naphtha Solvent Extract (Petroleum) [\*64741-99-7] F000-6477

A complex combination of hydrocarbons obtained as the extract from a solvent extraction process. It consists predominantly of aromatic hydrocarbons having carbon numbers predominantly in the range of C<sub>6</sub> through C<sub>8</sub> and boiling in the range of approximately 80°C to 145°C (176°F to 293°F). This stream is likely to contain 10 vol. % or more benzene.

Heavy Naphtha Solvent Extract (Petroleum) [\*64741-98-6] F000-6596

A complex combination of hydrocarbons obtained as the extract from a solvent extraction process. It consists predominantly of aromatic hydrocarbons having carbon numbers predominantly in the range of C<sub>7</sub> through C<sub>12</sub> and boiling in the range of approximately 90°C to 220°C (194°F to 428°F).

Middle Distillate Solvent Extract (Petroleum) [\*64742-06-9] F000-6616

A complex combination of hydrocarbons obtained as the extract from a solvent extraction process. It consists predominantly of aromatic hydrocarbons having carbon numbers predominantly in the range of C<sub>9</sub> through C<sub>20</sub> and boiling in the range of approximately 150°C to 345°C (302°F to 653°F).

Gas Oil Solvent Extract (Petroleum) [\*64743-06-2] F000-6727

A complex combination of hydrocarbons obtained as the extract from a solvent extraction process. It consists predominantly of aromatic hydrocarbons having carbon numbers predominantly in the range of C<sub>13</sub> through C<sub>25</sub> and boiling in the range of approximately 230°C to 400°C (446°F to 752°F).

Light Paraffinic Distillate Solvent Extract (Petroleum) [\*64742-05-8] F000-6837

A complex combination of hydrocarbons obtained as the extract from a solvent extraction process. It consists predominantly of aromatic hydrocarbons having carbon numbers predominantly in the range of C<sub>15</sub> through C<sub>30</sub>. This stream is likely to contain 5 wt. % or more of 4- to 6- membered condensed ring aromatic hydrocarbons.

Heavy Paraffinic Distillate Solvent Extract (Petroleum) [\*64742-04-7] F000-6942

A complex combination of hydrocarbons obtained as the extract from a solvent extraction process. It consists predominantly of aromatic hydrocarbons having carbon numbers predominantly in the range of C<sub>20</sub> through C<sub>50</sub>. This stream is likely to contain 5 wt. % or more of 4- to 6- membered condensed ring aromatic hydrocarbons.

Light Naphthenic Distillate Solvent Extract (Petroleum) [\*64742-03-6] F000-7031

A complex combination of hydrocarbons obtained as the extract from a solvent extraction process. It consists predominantly of aromatic hydrocarbons having carbon numbers predominantly in the range of C<sub>15</sub> through C<sub>30</sub>. This stream is likely to contain 5 wt. % or more of 4- to 6- membered condensed ring aromatic hydrocarbons.

Heavy Naphthenic Distillate Solvent Extract (Petroleum) [\*64742-11-6] F000-7157

A complex combination of hydrocarbons obtained as the extract from a solvent extraction process. It consists predominantly of aromatic hydrocarbons having carbon numbers predominantly in the range of C<sub>20</sub> through C<sub>50</sub>. This stream is likely to contain 5 wt. % or more of 4- to 6- membered condensed ring aromatic hydrocarbons.

Residual Oil Solvent Extract (Petroleum) [\*64742-10-5] F000-7261

A complex combination of hydrocarbons obtained as the extract from a solvent extraction process. It consists predominantly of aromatic hydrocarbons having carbon numbers predominantly higher than C<sub>25</sub>.

Heavy Paraffinic Distillate Decarbonization Raffinate (Petroleum)

[\*64742-09-2] F000-7377

A complex combination of hydrocarbons obtained as the solvent insoluble fraction from C<sub>5</sub> - C<sub>7</sub> solvent decarbonization of a heavy paraffinic distillate. It consists predominantly of aromatic hydrocarbons having carbon numbers predominantly in the range of C<sub>20</sub> through C<sub>50</sub>.

Heavy Naphthenic Distillate Decarbonization Raffinate (Petroleum)

[\*64742-08-1] F000-7482

A complex combination of hydrocarbons obtained as the solvent insoluble fraction from C<sub>5</sub> - C<sub>7</sub> solvent decarbonization of a heavy naphthenic distillate. It consists predominantly of aromatic hydrocarbons having carbon numbers predominantly in the range of C<sub>20</sub> through C<sub>50</sub>.

Residual Oil Decarbonization Raffinate (Petroleum) [\*64742-07-0] F000-7517

A complex combination of hydrocarbons obtained as the solvent insoluble fraction from C<sub>5</sub> - C<sub>7</sub> solvent decarbonization of a residual oil. It consists predominantly of aromatic hydrocarbons having carbon numbers predominantly higher than C<sub>34</sub> and boiling approximately above 495°C (923°F).

Resins (Petroleum) [\*64742-16-1] F000-7621

A complex combination of organic compounds, predominantly hydrocarbons, obtained as a fraction of the extract from solvent extraction of residuum. It consists predominantly of high molecular weight compounds with high carbon-to-hydrogen ratios.

Asphalt (Petroleum) [\*8052-42-4] F000-7737

A very complex combination of high molecular weight organic compounds containing a relatively high proportion of hydrocarbons having carbon numbers predominantly greater than C<sub>25</sub> with high carbon-to-hydrogen ratios. It also contains small amounts of various metals such as nickel, iron, or vanadium. It is obtained as the non-volatile residue from distillation of crude oil or by separation as the raffinate from a residual oil in a deasphalting or decarbonization process.

ACID TREATING STREAMS

Acid Treated Naphtha (Petroleum) [\*64742-15-0] F000-7842

A complex combination of hydrocarbons obtained as a raffinate from a sulfuric acid treating process. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>7</sub> through C<sub>12</sub> and boiling in the range of approximately 90°C to 230°C (194°F to 446°F).

Acid Treated Light Distillate (Petroleum) [\*64742-14-9] F000-7950

A complex combination of hydrocarbons obtained as a raffinate from a sulfuric acid treating process. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>9</sub> through C<sub>16</sub> and boiling in the range of approximately 150°C to 290°C (302°F to 554°F).

Acid Treated Middle Distillate (Petroleum) [\*64742-13-8] F000-8048

A complex combination of hydrocarbons obtained as a raffinate from a sulfuric acid treating process. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>11</sub> through C<sub>20</sub> and boiling in the range of approximately 205°C to 345°C (401°F to 653°F).

Acid Treated Gas Oil (Petroleum) [\*64742-12-7] F000-8167

A complex combination of hydrocarbons obtained as a raffinate from a sulfuric acid treating process. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>13</sub> through C<sub>25</sub> and boiling in the range of approximately 230°C to 400°C (446°F to 752°F).

Acid Treated Light Paraffinic Distillate (Petroleum) [\*64742-21-8] F000-8271

A complex combination of hydrocarbons obtained as a raffinate from a sulfuric acid treating process. It consists predominantly of saturated hydrocarbons having carbon numbers predominantly in the range of C<sub>15</sub> through C<sub>30</sub> and produces a finished oil having a viscosity of less than 100 SUS at 100°F (19cSt at 40°C).

Acid Treated Heavy Paraffinic Distillate (Petroleum) [\*64742-20-7] F000-8385

A complex combination of hydrocarbons obtained as a raffinate from a sulfuric acid process. It consists predominantly of saturated hydrocarbons having carbon numbers predominantly in the range of C<sub>20</sub> through C<sub>50</sub> and produces a finished oil having a viscosity of at least 100 SUS at 100°F (19cSt at 40°C).

Acid Treated Light Naphthenic Distillate (Petroleum) [\*64742-19-4] F000-8492

A complex combination of hydrocarbons obtained as a raffinate from a sulfuric acid treating process. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>15</sub> through C<sub>30</sub> and produces a finished oil with a viscosity of less than 100 SUS at 100°F (19cSt at 40°C). It contains relatively few normal paraffins.

Acid Treated Heavy Naphthenic Distillate (Petroleum) [\*64742-18-3] F000-8512

A complex combination of hydrocarbons obtained as a raffinate from a sulfuric acid treating process. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>20</sub> through C<sub>50</sub> and produces a finished oil with a viscosity of at least 100 SUS at 100°F (19cSt at 40°C). It contains relatively few normal paraffins.

Acid Treated Residual Oil (Petroleum) [\*64742-17-2] F000-8631

A complex combination of hydrocarbons obtained as a raffinate from a sulfuric acid treating process. It consists of hydrocarbons having carbon numbers predominantly greater than C<sub>25</sub> and boiling above approximately 400°C (752°F).

Acid Treated Wax (Petroleum) [\*64742-26-3] F000-8745

A complex combination of hydrocarbons produced by treating a petroleum wax fraction with sulfuric acid. It consists predominantly of saturated straight and branched chain hydrocarbons having carbon numbers predominantly in the range of C<sub>20</sub> through C<sub>50</sub>.

Acid Treated Spent Lube Oil (Petroleum) [\*64742-25-2] F000-8859

A complex combination of hydrocarbons obtained as a raffinate from a sulfuric acid treating process. It consists predominantly of hydrocarbons having carbon numbers predominantly in the range of C<sub>15</sub> through C<sub>50</sub>.

Acid Sludge (Petroleum) [\*64742-24-1] F000-8963

A complex combination of sulfuric and sulfonic acids, water, esters and high molecular weight organic compounds such as polymers of olefinic hydrocarbons. It is formed during the treating of petroleum fractions with sulfuric acid.

CHEMICALLY NEUTRALIZED STREAMS

Chemically Neutralized Light Naphtha (Petroleum) [\*64742-23-0] F000-9053

A complex combination of hydrocarbons produced by a treating process to remove acidic materials. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>4</sub> through C<sub>11</sub> and boiling in the range of approximately minus 20°C to 190°C (-4°F to 374°F).

Chemically Neutralized Heavy Naphtha (Petroleum) [\*64742-22-9] F000-9175

A complex combination of hydrocarbons produced by a treating process to remove acidic materials. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>6</sub> through C<sub>12</sub> and boiling in the range of approximately 65°C to 230°C (149°F to 446°F).

Chemically Neutralized Light Distillate (Petroleum) [\*64742-31-0] F000-9285

A complex combination of hydrocarbons produced by a treating process to remove acidic materials. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>9</sub> through C<sub>16</sub> and boiling in the range of approximately 150°C to 290°C (302°F to 554°F).

Chemically Neutralized Middle Distillate (Petroleum) [\*64742-30-9] F000-9393

A complex combination of hydrocarbons produced by a treating process to remove acidic materials. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>11</sub> through C<sub>20</sub> and boiling in the range of approximately 205°C to 345°C (401°F to 653°F).

Chemically Neutralized Gas Oil (Petroleum) [\*64742-29-6] F000-9415

A complex combination of hydrocarbons produced by a treating process to remove acidic materials. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>13</sub> through C<sub>25</sub> and boiling in the range of approximately 230°C to 400°C (446°F to 752°F).

Chemically Neutralized Light Paraffinic Distillate (Petroleum) [\*64742-28-5] F000-9529

A complex combination of hydrocarbons produced by a treating process to remove acidic materials. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>15</sub> through C<sub>30</sub> and produces a finished oil with a viscosity less than 100 SUS at 100°F (19cSt at 40°C).

Chemically Neutralized Heavy Paraffinic Distillate (Petroleum) [\*64742-27-4] F000-9648

A complex combination of hydrocarbons produced by a treating process to remove acidic materials. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>20</sub> through C<sub>50</sub> and produces a finished oil with a viscosity of at least 100 SUS at 100°F (19cSt at 40°C). It contains a relatively large proportion of aliphatic hydrocarbons.

Chemically Neutralized Light Naphthenic Distillate (Petroleum) [\*64742-35-4] F000-9759

A complex combination of hydrocarbons produced by a treating process to remove acidic materials. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>15</sub> through C<sub>30</sub> and produces a finished oil with a viscosity of less than 100 SUS at 100°F (19cSt at 40°C). It contains relatively few normal paraffins.

Chemically Neutralized Heavy Naphthenic Distillate (Petroleum) [\*64742-34-3] F000-9864

A complex combination of hydrocarbons produced by a treating process to remove acidic materials. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>20</sub> through C<sub>50</sub> and produces a finished oil with a viscosity of at least 100 SUS at 100°F (19cSt at 40°C). It contains relatively few normal paraffins.



Chemically Neutralized Wax (Petroleum) [\*64742-33-2] F000-9978

A complex combination of hydrocarbons produced by a treating process to remove acidic materials. It consists predominantly of saturated straight chain hydrocarbons having carbon numbers predominantly in the range of C<sub>20</sub> through C<sub>50</sub>.

Chemically Neutralized Spent Lube Oil (Petroleum) [\*64742-32-1] F001-0022

A complex combination of hydrocarbons produced by a treating process to remove acidic materials. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>15</sub> through C<sub>50</sub>.

Chemically Neutralized Sludge (Petroleum) [\*64743-07-3] F001-0145

A complex combination of substances obtained from the oil insoluble sludge that results from treating a petroleum stock with sulfuric acid, by contacting with sodium hydroxide or sodium carbonate solution. It consists predominantly of sodium salts of sulfonic and carboxylic acids, phenolic compounds, and other acidic compounds found in petroleum streams, together with water and hydrocarbons of molecular weight above 1000.

Spent Sodium Hydroxide Neutralizing Agent (Petroleum) [\*64742-40-1] F001-0254

A complex combination consisting predominantly of water and containing sodium hydroxide and organic and inorganic sodium salts. It is obtained by neutralization of an acidic petroleum stream.

Spent Sodium Carbonate Neutralizing Agent (Petroleum) [\*64742-39-8] F001-0364

A complex combination consisting predominantly of water and containing sodium carbonate and organic and inorganic sodium salts. It is obtained by neutralization of an acidic petroleum stream.

CLAY TREATING STREAMS

Clay Treated Distillate (Petroleum) [\*64742-38-7] F001-0478

A complex combination of hydrocarbons resulting from treatment of a petroleum fraction with natural or modified clay, usually in a percolation process to remove the trace amounts of polar compounds and impurities present. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>9</sub> through C<sub>20</sub> and boiling in the range of approximately 150°C to 345°C (302°F to 653°F).

Clay Treated Light Paraffinic Distillate (Petroleum) [\*64742-37-6] F001-0597

A complex combination of hydrocarbons resulting from treatment of a petroleum fraction with natural or modified clay in either a contacting or percolation process to remove the trace amounts of polar compounds and impurities present. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>15</sub> through C<sub>30</sub> and produces a finished oil with a viscosity of less than 100 SUS at 100°F (19cSt at 40°C). It contains a relatively large proportion of saturated hydrocarbons.

Clay Treated Heavy Paraffinic Distillate (Petroleum) [\*64742-36-5] F001-0617

A complex combination of hydrocarbons resulting from treatment of a petroleum fraction with natural or modified clay in either a contacting or percolation process to remove the trace amounts of polar compounds and impurities present. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>20</sub> through C<sub>50</sub> and produces a finished oil with a viscosity of at least 100 SUS at 100°F (19cSt at 40°C). It contains a relatively large proportion of saturated hydrocarbons.

Clay Treated Light Naphthenic Distillate (Petroleum) [\*64742-45-6] F001-0721

A complex combination of hydrocarbons resulting from treatment of a petroleum fraction with natural or modified clay in either a contacting or percolation process to remove the trace amounts of polar compounds and impurities present. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>15</sub> through C<sub>30</sub> and produces a finished oil with a viscosity of less than 100 SUS at 100°F (19cSt at 40°C). It contains relatively few normal paraffins.

Clay Treated Heavy Naphthenic Distillate (Petroleum) [\*64742-44-5] F001-0835

A complex combination of hydrocarbons resulting from treatment of a petroleum fraction with natural or modified clay in either a contacting or percolation process to remove the trace amounts of polar compounds and impurities present. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>20</sub> through C<sub>50</sub> and produces a finished oil with a viscosity of at least 100 SUS at 100°F (19cSt at 40°C). It contains relatively few normal paraffins.

Clay Treated Paraffin Wax (Petroleum) [\*64742-43-4] F001-0949

A complex combination of hydrocarbons obtained by treatment of a petroleum wax fraction with natural or modified clay in either a contacting or percolation process to remove the trace amounts of polar compounds and impurities present. It consists predominantly of straight chain saturated hydrocarbons having carbon numbers in the range of C<sub>20</sub> through C<sub>50</sub>.

Clay Treated Microcrystalline Wax (Petroleum) [\*64742-42-3] F001-1039

A complex combination of hydrocarbons obtained by treatment of a petroleum microcrystalline wax fraction with natural or modified clay in either a contacting or percolation process to remove the trace amounts of polar compounds and impurities present. It consists predominantly of long branched chain hydrocarbons having carbon numbers predominantly in the range of C<sub>25</sub> through C<sub>50</sub>.

Clay Treated Residual Oil (Petroleum) [\*64742-41-2] F001-1158

A complex combination of hydrocarbons obtained by treatment of a residual oil with a natural or modified clay in either a contacting or percolation process to remove the trace amounts of polar compounds and impurities present. It consists of hydrocarbons having carbon numbers predominantly higher than C<sub>25</sub> and boiling above approximately 400°C (752°F).

Clay Treated Spent Lube Oil (Petroleum) [\*64742-50-3] F001-1262

A complex combination of hydrocarbons obtained by treatment of a spent lubricating oil with a natural or modified clay in either a contacting or percolation process to remove the trace amounts of polar compounds and impurities present. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>15</sub> through C<sub>50</sub>.

HYDROTREATING STREAMS

Hydrotreated Light Naphtha (Petroleum) [\*64742-49-0] F001-1377

A complex combination of hydrocarbons obtained by treating a petroleum fraction with hydrogen in the presence of a catalyst. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>4</sub> through C<sub>11</sub> and boiling in the range of approximately minus 20°C to 190°C (-4°F to 374°F).

Hydrotreated Heavy Naphtha (Petroleum) [\*64742-48-9] F001-1485

A complex combination of hydrocarbons obtained by treating a petroleum fraction with hydrogen in the presence of a catalyst. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>6</sub> through C<sub>13</sub> and boiling in the range of approximately 65°C to 230°C (149°F to 446°F).

Hydrotreated Light Distillate (Petroleum) [\*64742-47-8] F001-1511

A complex combination of hydrocarbons obtained by treating a petroleum fraction with hydrogen in the presence of a catalyst. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>9</sub> through C<sub>16</sub> and boiling in the range of approximately 150°C to 290°C (302°F to 554°F).

Hydrotreated Middle Distillate (Petroleum) [\*64742-46-7] F001-1625

A complex combination of hydrocarbons obtained by treating a petroleum fraction with hydrogen in the presence of a catalyst. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>11</sub> through C<sub>25</sub> and boiling in the range of approximately 205°C to 400°C (401°F to 752°F).

Hydrotreated Light Paraffinic Distillate (Petroleum) [\*64742-55-8] F001-1738

A complex combination of hydrocarbons obtained by treating a petroleum fraction with hydrogen in the presence of a catalyst. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>15</sub> through C<sub>30</sub> and produces a finished oil with a viscosity of less than 100 SUS at 100°F (19cSt at 40°C). It contains a relatively large proportion of saturated hydrocarbons.

Hydrotreated Heavy Paraffinic Distillate (Petroleum) [\*64742-54-7] F001-1843

A complex combination of hydrocarbons obtained by treating a petroleum fraction with hydrogen in the presence of a catalyst. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>20</sub> through C<sub>50</sub> and produces a finished oil of at least 100 SUS at 100°F (19cSt at 40°C). It contains a relatively large proportion of saturated hydrocarbons.

Hydrotreated Light Naphthenic Distillate (Petroleum) [\*64742-53-6] F001-1957

A complex combination of hydrocarbons obtained by treating a petroleum fraction with hydrogen in the presence of a catalyst. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>15</sub> through C<sub>30</sub> and produces a finished oil with a viscosity of less than 100 SUS at 100°F (19cSt at 40°C). It contains relatively few normal paraffins.

Hydrotreated Heavy Naphthenic Distillate (Petroleum) [\*64742-52-5] F001-2046

A complex combination of hydrocarbons obtained by treating a petroleum fraction with hydrogen in the presence of a catalyst. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>20</sub> through C<sub>50</sub> and produces a finished oil of at least 100 SUS at 100°F (19cSt at 40°C). It contains relatively few normal paraffins.

Hydrotreated Paraffin Wax (Petroleum) [\*64742-57-4] F001-2166

A complex combination of hydrocarbons obtained by treating a petroleum wax with hydrogen in the presence of a catalyst. It consists predominantly of straight chain paraffinic hydrocarbons having carbon numbers predominantly in the range of about C<sub>20</sub> through C<sub>50</sub>.

Hydrotreated Microcrystalline Wax (Petroleum) [\*64742-60-5] F001-2270

A complex combination of hydrocarbons obtained by treating a petroleum microcrystalline wax with hydrogen in the presence of a catalyst. It consists predominantly of long, branched chain hydrocarbons having carbon numbers predominantly in the range of C<sub>25</sub> through C<sub>50</sub>.

Hydrotreated Vacuum Gas Oil (Petroleum) [\*64742-59-2] F001-2385

A complex combination of hydrocarbons obtained by treating a petroleum fraction with hydrogen in the presence of a catalyst. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>13</sub> through C<sub>50</sub> and boiling in the range of approximately 230°C to 600°C (446°F to 1112°F). This stream is likely to contain 5 wt. % or more of 4- to 6- membered condensed ring aromatic hydrocarbons.

Hydrotreated Residual Oil (Petroleum) [\*64742-57-0] F001-2497

A complex combination of hydrocarbons obtained by treating a petroleum fraction with hydrogen in the presence of a catalyst. It consists of hydrocarbons having carbon numbers predominantly greater than C<sub>25</sub> and boiling above approximately 400°C (752°F).

Hydrotreated Spent Lube Oil (Petroleum) [\*64742-58-1] F001-2513

A complex combination of hydrocarbons obtained by treating a spent lube oil with hydrogen in the presence of a catalyst. It consists predominantly of hydrocarbons having carbon numbers predominantly in the range of C<sub>15</sub> through C<sub>50</sub>.

SOLVENT DEWAXING STREAMS

Solvent Dewaxed Light Paraffinic Distillate (Petroleum) [\*64742-56-9] F001-2633

A complex combination of hydrocarbons obtained by removal of normal paraffins from a petroleum fraction by solvent crystallization. It consists predominantly of hydrocarbons having carbon numbers predominantly in the range of C<sub>15</sub> through C<sub>30</sub> and produces a finished oil with a viscosity of less than 100 SUS at 100°F (19cSt at 40°C).

Solvent Dewaxed Heavy Paraffinic Distillate (Petroleum) [\*64742-65-0] F001-2743

A complex combination of hydrocarbons obtained by removal of normal paraffins from a petroleum fraction by solvent crystallization. It consists predominantly of hydrocarbons having carbon numbers predominantly in the range of C<sub>20</sub> through C<sub>50</sub> and produces a finished oil with a viscosity not less than 100 SUS at 100°F (19cSt at 40°C).

Solvent Dewaxed Light Naphthenic Distillate (Petroleum) [\*64742-64-9] F001-2851

A complex combination of hydrocarbons obtained by removal of normal paraffins from a petroleum fraction by solvent crystallization. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>15</sub> through C<sub>30</sub> and produces a finished oil with a viscosity of less than 100 SUS at 100°F (19cSt at 40°C). It contains relatively few normal paraffins.

Solvent Dewaxed Heavy Naphthenic Distillate (Petroleum) [\*64742-63-8] F001-2965

A complex combination of hydrocarbons obtained by removal of normal paraffins from a petroleum fraction by solvent crystallization. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>20</sub> through C<sub>50</sub> and produces a finished oil of not less than 100 SUS at 100°F (19cSt at 40°C). It contains relatively few normal paraffins.

Solvent Dewaxed Residual Oil (Petroleum) [\*64742-62-7] F001-3054

A complex combination of hydrocarbons obtained by removal of long, branched chain hydrocarbons from a residual oil by solvent crystallization. It consists of hydrocarbons having carbon numbers predominantly greater than C<sub>25</sub> and boiling above approximately 400°C (752°F).

Slack Wax (Petroleum) [\*64742-61-6] F001-3173

A complex combination of hydrocarbons obtained from a petroleum fraction by solvent crystallization (solvent dewaxing) or as a distillation fraction from a very waxy crude. It consists predominantly of saturated straight and branched chain hydrocarbons having carbon numbers predominantly greater than C<sub>20</sub>.

Petrolatum (Petroleum) [\*8009-03-8] F001-3284

A complex combination of hydrocarbons obtained as a semi-solid from dewaxing paraffinic residual oil. It consists predominantly of saturated crystalline and liquid hydrocarbons having carbon numbers predominantly greater than C<sub>25</sub>.

Foots Oil (Petroleum) [\*64742-67-2] F001-3398

A complex combination of hydrocarbons obtained as the oil fraction from a solvent deoiling or a wax sweating process. It consists predominantly of branched chain hydrocarbons having carbon numbers predominantly in the range of C<sub>20</sub> through C<sub>50</sub>.

Paraffin Wax (Petroleum) [\*8002-74-2] F001-3419

A complex combination of hydrocarbons obtained from petroleum fractions by solvent crystallization (solvent deoiling) or by the sweating process. It consists predominantly of straight chain hydrocarbons having carbon numbers predominantly greater than C<sub>20</sub>.

Microcrystalline Wax (Petroleum) [\*63237-60-7] F001-3525

A complex combination of long, branched chain hydrocarbons obtained from residual oils by solvent crystallization. It consists predominantly of saturated straight and branched chain hydrocarbons predominantly greater than C<sub>35</sub>.

CATALYTIC DEWAXING STREAMS

Catalytic Dewaxed Naphtha (Petroleum) [\*64742-66-7] F001-3647

A complex combination of hydrocarbons obtained from the catalytic dewaxing of a petroleum fraction. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>5</sub> through C<sub>12</sub> and boiling in the range of 35°C to 230°C (95°F to 446°F).

Catalytic Dewaxed Middle Distillate (Petroleum) [\*64742-72-9] F001-3756

A complex combination of hydrocarbons obtained from a catalytic dewaxing process. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>9</sub> through C<sub>20</sub> and boiling in the range of approximately 150°C to 345°C (302°F to 653°F).

Catalytic Dewaxed Light Paraffinic Oil (Petroleum) [\*64742-77-8] F001-3861

A complex combination of hydrocarbons obtained from a catalytic dewaxing process. It consists predominantly of hydrocarbons having carbon numbers predominantly in the range of C<sub>15</sub> through C<sub>30</sub> and produces a finished oil with a viscosity of less than 100 SUS at 100°F (19cSt at 40°C).

Catalytic Dewaxed Heavy Paraffinic Oil (Petroleum) [\*64742-70-7] F001-3975

A complex combination of hydrocarbons obtained from a catalytic dewaxing process. It consists predominantly of hydrocarbons having carbon numbers predominantly in the range of C<sub>20</sub> through C<sub>50</sub> and produces a finished oil with a viscosity of at least 100 SUS at 100°F (19cSt at 40°C).

Catalytic Dewaxed Light Naphthenic Oil (Petroleum) [\*64742-69-4] F001-4066

A complex combination of hydrocarbons obtained from a catalytic dewaxing process. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>15</sub> through C<sub>30</sub> and produces a finished oil with a viscosity less than 100 SUS at 100°F (19cSt at 40°C). It contains relatively few normal paraffins.

Catalytic Dewaxed Heavy Naphthenic Oil (Petroleum) [\*64742-68-3] F001-4185

A complex combination of hydrocarbons obtained from a catalytic dewaxing process. It consists predominantly of hydrocarbons having carbon numbers predominantly in the range of C<sub>20</sub> through C<sub>50</sub> and produces a finished oil with a viscosity of at least 100 SUS at 100°F (19cSt at 40°C). It contains relatively few normal paraffins.

COMPLEX DEWAXING STREAMS

Complex Dewaxed Middle Distillate (Petroleum) [\*64742-77-4] F001-4205

A complex combination of hydrocarbons obtained by removing straight chain paraffin hydrocarbons as solid adducts by treatment with an agent such as urea. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>9</sub> through C<sub>20</sub> and boiling in the range of approximately 150°C to 345°C (302°F to 653°F).

Complex Dewaxed Light Naphthenic Oil (Petroleum) [\*64742-76-3] F001-4310

A complex combination of hydrocarbons obtained from a catalytic dewaxing process. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>15</sub> through C<sub>30</sub> and produces a finished oil having a viscosity less than 100 SUS at 100°F (19cSt at 40°C). It contains relatively few normal paraffins.

Complex Dewaxed Heavy Naphthenic Oil (Petroleum) [\*64742-75-2] F001-4424

A complex combination of hydrocarbons obtained by removing straight chain paraffin hydrocarbons as a solid by treatment with an agent such as urea. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>20</sub> through C<sub>50</sub> and produces a finished oil having a viscosity of at least 100 SUS at 100°F (19cSt at 40°C). It contains relatively few normal paraffins.

Urea/Wax Adduct (Petroleum) [\*64742-74-1] F001-4538

A complex combination consisting of the products of an adduct formation between urea and straight chain saturated hydrocarbons having carbon numbers predominantly in the range of C<sub>15</sub> through C<sub>50</sub>.



## HYDRODESULFURIZATION STREAMS

Hydrodesulfurized Light Naphtha (Petroleum) [\*64742-73-0] F001-4657

A complex combination of hydrocarbons obtained from a catalytic hydrodesulfurization process. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>4</sub> through C<sub>11</sub> and boiling in the range of approximately minus 20°C to 190°C (-4°F to 374°F).

Hydrodesulfurized Heavy Naphtha (Petroleum) [\*64742-82-1] F001-4761

A complex combination of hydrocarbons obtained from a catalytic hydrodesulfurization process. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>7</sub> through C<sub>12</sub> and boiling in the range of approximately 90°C to 230°C (194°F to 446°F).

Hydrodesulfurized Kerosine (Petroleum) [\*64742-81-0] F001-4875

A complex combination of hydrocarbons obtained from a petroleum stock by treating with hydrogen to convert organic sulfur to hydrogen sulfide which is removed. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>9</sub> through C<sub>16</sub> and boiling in the range of approximately 150°C to 290°C (302°F to 554°F).

Hydrodesulfurized Middle Distillate (Petroleum) [\*64742-80-9] F001-4983

A complex combination of hydrocarbons obtained from a petroleum stock by treating with hydrogen to convert organic sulfur to hydrogen sulfide which is removed. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>11</sub> through C<sub>25</sub> and boiling in the range of approximately 205°C to 400°C (401°F to 752°F).

Hydrodesulfurized Gas Oil (Petroleum) [\*64742-79-6] F001-5074

A complex combination of hydrocarbons obtained from a petroleum stock by treating with hydrogen to convert organic sulfur to hydrogen sulfide which is removed. It consists predominantly of hydrocarbons having carbon numbers predominantly in the range of C<sub>13</sub> through C<sub>25</sub> and boiling in the range of approximately 230°C to 400°C (446°F to 752°F).

Hydrodesulfurized Atmospheric Tower Residuum (Petroleum) [\*64742-78-5] F001-5193

A complex combination of hydrocarbons obtained by treating an atmospheric tower residuum with hydrogen in the presence of a catalyst under conditions primarily to remove organic sulfur compounds. It consists of hydrocarbons having carbon numbers predominantly greater than C<sub>20</sub> and boiling above approximately 350°C (662°F). This stream is likely to contain 5 wt. % or more of 4- to 6-membered condensed ring aromatic hydrocarbons.

Hydrodesulfurized Light Vacuum Gas Oil (Petroleum) [\*64742-87-6] F001-5213

A complex combination of hydrocarbons obtained from a catalytic hydrodesulfurization process. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>13</sub> through C<sub>30</sub> and boiling in the range of approximately 230°C to 450°C (446°F to 842°F).

Hydrodesulfurized Heavy Vacuum Gas Oil (Petroleum) [\*64742-86-5] F001-5327

A complex combination of hydrocarbons obtained from a catalytic hydrodesulfurization process. It consists of hydrocarbons having carbon numbers predominantly in the range of C<sub>20</sub> through C<sub>50</sub> and boiling in the range of approximately 350°C to 600°C (662°F to 1112°F). This stream is likely to contain 5 wt. % or more of 4- to 6- membered condensed ring aromatic hydrocarbons.

Hydrodesulfurized Vacuum Residuum (Petroleum) [\*64742-85-4] F001-5431

A complex combination of hydrocarbons obtained by treating a vacuum residuum with hydrogen in the presence of a catalyst under conditions primarily to remove organic sulfur compounds. It consists of hydrocarbons having carbon numbers predominantly greater than C<sub>34</sub> and boiling approximately above 495°C (923°F).

Hydrodesulfurized Crude Oil (Petroleum) [\*64742-84-3] F001-5545

A complex combination of hydrocarbons obtained by treating a crude oil with hydrogen in the presence of a catalyst under conditions primarily to remove some organic sulfur compounds. Some of the unsaturated compounds present are also converted to saturated compounds.

STEAM CRACKING STREAMS

Light Steam Cracked Naphtha (Petroleum) [\*64742-83-2] F001-5665

A complex combination of hydrocarbons obtained by the distillation of the products from a steam cracking process. It consists predominantly of unsaturated hydrocarbons having carbon numbers predominantly in the range of C<sub>4</sub> through C<sub>11</sub> and boiling in the range of approximately minus 20°C to 190°C (-4°F to 374°F). This stream is likely to contain 10 vol. % or more benzene.

Steam Cracked Distillate (Petroleum) [\*64742-91-2] F001-5776

A complex combination of hydrocarbons obtained by the distillation of the products from a steam cracking process. It consists predominantly of unsaturated hydrocarbons having carbon numbers predominantly in the range of C<sub>7</sub> through C<sub>16</sub> and boiling in the range of approximately 90°C to 290°C (190°F to 554°F).

Steam Cracked Residuum (Petroleum)    [\*64742-90-1]    F001-5881

A complex combination of hydrocarbons obtained as the residual fraction from the distillation of the products of a steam cracking process (including steam cracking to produce ethylene). It consists predominantly of unsaturated hydrocarbons having carbon numbers predominantly greater than C<sub>14</sub> and boiling above approximately 260°C (500°F). This stream is likely to contain 5 wt. % or more of 4- to 6- membered condensed ring aromatic hydrocarbons.

SPECIAL SOLVENT STREAMS

Light Aliphatic Solvent Naphtha (Petroleum)    [\*64742-89-8]    F001-5999

A complex combination of hydrocarbons obtained from the distillation of crude oil or natural gasoline. It consists predominantly of saturated hydrocarbons having carbon numbers predominantly in the range of C<sub>5</sub> through C<sub>10</sub> and boiling in the range of approximately 35°C to 160°C (95°F to 320°F).

Medium Aliphatic Solvent Naphtha (Petroleum)    [\*64742-88-7]    F001-6088

A complex combination of hydrocarbons obtained from the distillation of crude oil or natural gasoline. It consists predominantly of saturated hydrocarbons having carbon numbers predominantly in the range of C<sub>9</sub> through C<sub>12</sub> and boiling in the range of approximately 140°C to 220°C (284°F to 428°F).

Heavy Aliphatic Solvent Naphtha (Petroleum)    [\*64742-96-7]    F001-6111

A complex combination of hydrocarbons obtained from the distillation of crude oil or natural gasoline. It consists predominantly of saturated hydrocarbons having carbon numbers predominantly in the range of C<sub>11</sub> through C<sub>16</sub> and boiling in the range of approximately 190°C to 290°C (374°F to 554°F).

Light Aromatic Solvent Naphtha (Petroleum)    [\*64742-95-6]    F001-6225

A complex combination of hydrocarbons obtained from distillation of aromatic streams. It consists predominantly of aromatic hydrocarbons having carbon numbers predominantly in the range of C<sub>8</sub> through C<sub>10</sub> and boiling in the range of approximately 135°C to 210°C (275°F to 410°F).

Heavy Aromatic Solvent Naphtha (Petroleum)    [\*64742-94-5]    F001-6339

A complex combination of hydrocarbons obtained from distillation of aromatic streams. It consists predominantly of aromatic hydrocarbons having carbon numbers predominantly in the range of C<sub>9</sub> through C<sub>16</sub> and boiling in the range of approximately 165°C to 290°C (330°F to 554°F).

## OXIDIZER STREAMS

### Oxidized Asphalt (Petroleum)    [\*64742-93-4]    F001-6444

A complex black solid obtained by blowing air through a heated residuum, or raffinate from a deasphalting process with or without a catalyst. The process is principally one of oxidative condensation which increases the molecular weight.

### Oxidized Resins (Petroleum)    [\*64742-92-3]    F001-6558

A complex combination of organic compounds, predominantly high molecular weight carboxylic acids, obtained by the air oxidation of petroleum resins from the solvent extraction of a residuum.

### Oxidized Waxes (Petroleum)    [\*64743-00-6]    F001-6676

A complex combination of organic compounds, predominantly high molecular weight carboxylic acids, obtained by the air oxidation of petroleum waxes.

### Oxidized Petrolatum (Petroleum)    [\*64743-07-7]    F001-6786

A complex combination of organic compounds, predominantly high molecular weight carboxylic acids, obtained by the air oxidation of petrolatum.

### Oxidized Residual Oil (Petroleum)    [\*64742-99-0]    F001-6897

A complex combination of organic compounds, predominantly high molecular weight carboxylic acids, obtained by the air oxidation of a solvent deasphalted residual oil.

### Oxidized Light Distillate (Petroleum)    [\*64742-98-9]    F001-6911

A complex combination of organic compounds, predominantly carboxylic acids, obtained by the air oxidation of a petroleum fraction having carbon numbers predominantly in the range of C<sub>11</sub> through C<sub>30</sub>.

### Oxidized Heavy Distillate (Petroleum)    [\*64742-97-8]    F001-7094

A complex combination of organic compounds, predominantly carboxylic acids, obtained by the air oxidation of a petroleum fraction having carbon numbers predominantly in the range of C<sub>20</sub> through C<sub>50</sub>.

## NAPHTHENIC ACIDS

Crude Naphthenic Acids (Petroleum) [\*64754-89-8] F001-7116

A complex combination of compounds, predominantly naturally occurring organic acids, obtained from petroleum fractions by saponification and acidification. It consists predominantly of compounds which contain carboxylic acid functional groups and five- to six-member naphthenic rings in their molecular structures. Phenolic compounds and acidic sulfur compounds may also be present.

Naphthenic Acids (Petroleum) [\*1338-24-5] F001-7238

A complex combination of organic acids produced by removing non-carboxylic compounds from crude naphthenic acids, either by distillation or extraction.

## MISCELLANEOUS REFINERY STREAMS

Crude Phenolic Compounds (Petroleum) [\*64743-03-9] F001-7347

A complex combination of organic compounds, predominantly phenol, cresols, xylenols and other alkylated phenols obtained primarily from cracked naphtha or distillate streams by alkaline extraction.

Alpha Olefins (Petroleum) [\*64743-02-8] F001-7452

A combination of normal alpha olefins having carbon numbers predominantly greater than C<sub>10</sub> obtained by the polymerization of low molecular weight olefins, or by the cracking of wax or other primarily long chain normal paraffins.

Chlorinated Waxes (Petroleum) [\*63449-39-8] F001-7564

A combination of molecules of paraffin wax containing various proportions of chlorine atoms depending on condition of the process, obtained by the chlorination of paraffin wax. Commercial grades are predominantly in the range of 20% to 70% chlorine and are liquid or resinous substances depending on the feedstock and extent of chlorination.

Normal Paraffins (Petroleum) [\*64771-71-7] F001-7688

A combination of normal paraffins having carbon numbers predominantly greater than C<sub>10</sub> obtained by urea adduction or molecular sieve processes.

Calcined Coke (Petroleum) [\*64743-05-1] F001-7706

A complex combination of carbonaceous material including extremely high molecular weight hydrocarbons obtained as a solid material from the calcining of petroleum coke at temperatures in excess of 1000°C (1800°F). The hydrocarbons present in calcined coke have a very high carbon-to-hydrogen ratio.

Recovery Coke (Petroleum) [\*64743-04-0] F001-7811

A carbonaceous substance recovered from acid sludge after removal of acidic material at high temperature (e.g., approximately 1000°F).

Petroleum Sulfonic Acid (Petroleum) [\*61789-85-3] F001-7921

A complex combination of oil-soluble sulfonic acids obtained by treating selected petroleum refinery streams with either sulfuric acid, sulfur dioxide, sulfur trioxide or other sulfonating agents.

White Mineral Oil (Petroleum) [\*8042-47-5] F001-8016

A highly refined petroleum mineral oil consisting of a complex combination of hydrocarbons obtained from the intensive treatment of a petroleum fraction with sulfuric acid and oleum, or by hydrogenation, or by a combination of hydrogenation and acid treatment. Additional washing and treating steps may be included in the processing operation. It consists of saturated hydrocarbons having carbon numbers predominantly in the range of C<sub>15</sub> through C<sub>50</sub>.

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Miscellaneous  
Substances Of  
Interest

\* \* \* \* \*

### TALLOW

Tallow acids, sodium salts [\*8052-48-0] F001-8124

Tallow acids, lithium salts [\*64755-02-8] F001-8241

Tallow acids, potassium salts [\*61790-32-7] F001-8355

Tallow acids, calcium salts [\*64755-01-7] F001-8461

Tallow acids, barium salts [\*64755-00-6] F001-8575

Acidless Tallow oil, sodium salts [\*64741-40-8] F001-8695

Acidless Tallow oil, lithium salts [\*64741-39-5] F001-8717

Acidless Tallow oil, potassium salts [\*64741-38-4] F001-8822

Acidless Tallow oil, calcium salts [\*64741-37-3] F001-8936

Acidless Tallow oil, barium salts [\*64741-36-2] F001-9025

### 12-HYDROXY STEARIC ACID SALTS

12-Hydroxy Stearic Acid, calcium salt (2:1) [3159-62-4] F001-9131

12-Hydroxy Stearic Acid, monolithium salt [7620-77-1] F001-9254

12-Hydroxy Stearic Acid, monosodium salt [13329-67-4] F001-9362

12-Hydroxy Stearic Acid, monopotassium salt [34326-46-0] F001-9478

### COCONUT FATTY ACID SALTS

Coconut fatty acids, calcium salts [\*64754-97-8] F001-9580

Coconut fatty acids, barium salts [\*64754-96-7] F001-9615



#### STEARIC ACID SALTS

Stearic acid, sodium salt [822-16-2] F001-9727

Stearic acid, calcium salt [1592-23-0] F001-9834

Stearic acid, aluminum salt [637-12-7] F001-9946

#### HYDROGENATED CASTOR OIL SALTS

Castor oil, hydrogenated, lithium salts [\*64754-95-6] F002-0082

#### AZELAIC ACID SALTS

Azelaic acid, disodium salt [17265-13-3] F002-0111

Azelaic acid, dilithium salt [38900-29-7] F002-0223

Azelaic acid, dipotassium salt [52457-54-2] F002-0338

Azelaic acid, calcium salt (1:1) [14488-58-5] F002-0446

Azelaic acid, barium salt (1:1) [14488-59-6] F002-0556

Azelaic acid, aluminum salt (3:2) [64653-29-8] F002-0671

#### MYRISTIC ACID SALTS

Myristic acid, sodium salt [822-12-8] F002-0787

Myristic acid, lithium salt [20336-96-3] F002-0892

Myristic acid, calcium salt [15284-51-2] F002-0911

#### BENZOIC ACID SALTS

Benzoic acid, sodium salt [532-32-7] F002-1096

Benzoic acid, lithium salt [553-54-8] F002-1112

Benzoic acid, potassium salt [582-25-2] F002-1236

Benzoic acid, calcium salt [2090-05-3] F002-1343

Benzoic acid, aluminum salt [555-32-8] F002-1458

Benzoic acid, barium salt [533-00-6] F002-1569

#### OLEIC ACID SALTS

Oleic acid, sodium salt [743-79-7] F002-1686

Oleic acid, lithium salt [7384-22-7] F002-1701

Oleic acid, potassium salt [743-78-0] F002-1814

Oleic acid, calcium salt [742-77-6] F002-1924

Oleic acid, aluminum salt [688-37-9] F002-2018

Oleic acid, barium salt [587-65-7] F002-2121

#### ACETIC ACID SALTS

Acetic acid, sodium salt [127-09-3] F002-2247

Acetic acid, lithium salt [546-89-4] F002-2351

Acetic acid, potassium salt [127-08-2] F002-2468

Acetic acid, calcium salt [62-54-4] F002-2574

Acetic acid, aluminum salt [739-12-8] F002-2699

Acetic acid, barium salt [543-80-6] F002-2712

NAPHTHENIC ACID SALTS

Naphthenic acids, aluminum salts (Petroleum) [\*61789-64-8] F002-2822

Naphthenic acids, lead salts (Petroleum) [\*61790-14-5] F002-2931

Naphthenic acids, sodium salts (Petroleum) [\*61790-13-4] F002-3029