

# Nicodom IR Petrochemicals (1054 spectra)

## Introduction

The FTIR spectral library „Nicodom IR Petrochemicals“ include 1054 FTIR spectra of samples related to petrochemical industry.

The samples have been selected and described together with a team of consultants from petrochemical industry.

Petroleum or crude oil is a naturally occurring liquid consisting mostly of a complex mixture of hydrocarbons. It is refined and separated in refineries into a large number of consumer products. Modern refinery operations are very complex and the petrochemical industry uses their own language to describe the processes and the products.

Petrochemicals are compounds and polymers derived from petroleum. Primary petrochemicals include olefins, aromatics and methanol. Some of those are destined for further processing. The petrochemical intermediates are produced by chemical conversion of primary petrochemicals to form more complicated derivatives. The end products number in the thousands.

Our definition of petrochemicals has been broadened to include a unique collection over 100 spectra of crude oils from different reservoirs and examples of typical mixtures from the crude oil refining process. Those FTIR spectra bring a valuable information for petrochemical specialists even if some of the samples have very similar composition.

Whole range of aliphatic, aromatic and naphthenic organic chemicals and their important derivatives which may include other atoms than carbon and hydrogen form the main part of „Nicodom IR Petrochemicals“

The full version of „Nicodom IR Petrochemicals“ include name, product type, manufacturer, CAS number and other sample information.

The following list only include the common names without important details.

The spectra were collected using the FTIR Spectrometer Impact 410 and Nexus 670™ (Thermo) and the Miracle™ single bounce ATR accessory (Pike Technologies) equipped by Si, ZnSe and Diamond crystal.

The spectral library features resolution of 4cm-1 in the spectral range 600-4000 cm-1, measurement time 1 minute.

This library is available as digital searchable library compatible with your spectroscopic software. Also it can be delivered with SEARCH software or in \*.pdf format.

To download the list of spectra from this library, to download a free demo library compatible with your software, to check the format compatibility as well as for pricelist, ordering info and information about all NICODOM IR/NIR Libraries and other NICODOM products please visit our webpage.

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**1054 IR spectra**

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# List of Compounds

## Crude Oil Types

Amna Crude Oil Libya  
Azeri Light Crude Oil Azerbaijan  
CPC Crude Oil Russia  
El Sharara Crude Oil Libya  
Espoir Crude Oil Ivory Coast  
Cheleken Crude Oil Turkmenistan  
Iran Light Crude Oil  
Kumkol Crude Oil Kazakhstan  
MND Crude Oil Czech Republic  
REB Crude Oil Russia  
Sirri Crude Oil Iran  
Statfjord Crude Oil North Sea  
Syrian Light Crude Oil  
Val d Agri Crude Oil Italy  
Zarzaitine Crude Oil Algeria

## Crude Oil Light Fraction

Alkylate  
Fluid catalytic cracker heavy naphtha  
Hydrocracker heavy Naphtha  
Hydrotreated Heavy Naphtha  
Isomerate  
Reformate  
Straight-run full range naphtha  
Straight-run heavy naphtha  
White Spirit

## Crude Oil Middle Distillate

Feedstock for middle distillate hydrotreater  
Hydrotreater gas Oil Sample 1  
Hydrotreater gas Oil Sample 2  
Hydrotreater gas Oil Sample 3  
Hydrotreater gas Oil Sample 4  
Hydrotreater kerosene  
Hydrotreater light cycle oil  
Light cycle oil from FCC unit  
Low-viscosity lube oil from Hydrocracker, kin. viscosity at 40 °C cca 10 mm<sup>2</sup>/s  
Low-viscosity lube oil from Hydrocracker, kin. viscosity at 40 °C cca 2,5 mm<sup>2</sup>/s  
Low-viscosity lube oil from Hydrocracker, kin. viscosity at 40 °C cca 4,5 mm<sup>2</sup>/s  
Straight-run gas Oil Sample 1  
Straight-run gas Oil Sample 2  
Vacuum gas Oil Sample 1  
Vacuum gas Oil Sample 2

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# **Crude Oil Vacuum Distillate**

Base Oil SN 150

Base Oil SN 600

Heavy vacuum distillate from feed preparation vacuum unit

Hydrocracker Base Oil, parafine free, finished (clay treated)

Light vacuum distillate from feed preparation vacuum unit

Second vacuum sidestream (distillate) from lubeoil vacuum unit

Second vacuum sidestream (distillate), dewaxed, refined

Slop oil (Metal cut) from crude oil vacuum distillation

Solvent Bright Stock 460

Third vacuum sidestream (distillate) after solvent dewaxing

Third vacuum sidestream (distillate) from lubeoil vacuum unit

Third vacuum sidestream (distillate), dewaxed, refined

# **Crude Oil Residue**

Asphalt from butane deasphaltization

Atmospheric Residue (Long residue)

Atmospheric Residue (Long residue) from Amna crude oil prep. by lab. distillation

Atmospheric Residue (Long residue) from Azeri Light crude oil prep. by lab. distillation

Atmospheric Residue (Long residue) from El Sahara crude oil prep. by lab. distillation

Atmospheric Residue (Long residue) from ES Sider crude oil prep. by lab. distillation

Atmospheric Residue (Long residue) from Iranian Light crude oil prep. by lab. distillation

Atmospheric Residue (Long residue) from Kumkol crude oil prep. by lab. distillation

Atmospheric Residue (Long residue) from mixture (75:25) of Azeri Light and CPC blend crude oils prep. by lab. distillation

Atmospheric residue (Long residue) from mixture of Azeri Light and Syrian Light crude oil prep. by lab. distillation

Atmospheric Residue (Long residue) from REB crude oil prep. by lab. distillation

Atmospheric Residue (Long residue) from Syrian Light crude oil prep. by lab. distillation

Atmospheric Residue (Long residue) from Velebit Crude Oil (Serbia)

Atmospheric residue from vacuum distillate hydrocracking

Vacuum Residue from Azeri Light crude oil

Vacuum Residue from Es Sider crude oil

Vacuum residue from mixture of Azeri Light and Syrian Light crude oils

Vacuum Residue from REB crude oil

# **Fuels**

Biobutanol

Diesel Fuel 7% Biodiesel Esso Petrol Station

Diesel Fuel arctic, Agip petrol station

Diesel Fuel DieselTech, Agip petrol station

Diesel Fuel NM 22A

Diesel Fuel NM-35

Diesel Fuel Optimal, EuroOil petrol station

Diesel Fuel Top Q, Benzina Petrol Station

Diesel Fuel Ultimate Aral Petrol Station

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Diesel Fuel Ultradiesel, Unipetrol petrol station  
Diesel Fuel Verva, Benzina petrol station  
Diesel Fuel V-Power, Shell petrol station  
Diesel Fuel, EuroOil petrol station  
Diesel Fuel, Unipetrol petrol station  
Diesel Fuel, Shell petrol station  
Diesel Oil without Fatty Acids Methyl Esters  
Ethanol fuel blend of up 85 % vol bioethanol and gasoline  
Fuel Oil  
Fuel Oil  
Fuel Oil Extra Light  
Fuel Oil L Colored  
Fuel Oil Light  
Fuel Oil Light Colored  
Fuel Oil Light Low S Contents  
Gasoline Fuel 95 Octane Agip Petrol Station  
Gasoline Fuel 98 Octane KM Petrol Station  
Gasoline Fuel 91 Octane Lukoil Petrol Station  
Gasoline Fuel Maxmotion 100 Octane Premium OMV Petrol Station  
Gasoline Fuel Natural 95 Octane Benzina Petrol Station  
Gasoline Fuel Natural 95 Octane Lukoil Petrol Station  
Gasoline Fuel Natural 95 Octane Tesco Petrol Station  
Gasoline Fuel Natural 95 Octane Texaco Petrol Station  
Gasoline Fuel Natural 98 Octane Agip Petrol Station  
Gasoline Fuel Natural 98 Octane Avanti Petrol Station  
Gasoline Fuel Natural 98 Octane PAP Petrol Station  
Gasoline Fuel Super 95 Octane 5% Bioethanol Aral Petrol Station  
Gasoline Fuel Super 95 Octane 5% Bioethanol Esso Petrol Station  
Gasoline Fuel Super E-10 95 Octane 10% Bioethanol Esso Petrol Station  
Gasoline Fuel Super E-10 95 Octane 10% Bioethanol Shell Petrol Station  
Gasoline Fuel Super E10 ROZ 95 DIN 51626-1 10% Bioethanol Esso Petrol Station  
Gasoline Fuel Super Plus ROZ 98 DIN 228 Esso Petrol Station  
Gasoline Fuel Super Plus ROZ 98 Go Markt Petrol Station  
Gasoline Fuel Supertech 95 Octane Agip Petrol Station  
Gasoline Fuel Ultimate Aral Petrol Station  
Gasoline Fuel Ultimate 102 DIN EN 228 Aral Petrol Station  
Gasoline Fuel Ultra 95 Octane Unipetrol Petrol Station  
Gasoline Fuel Verva 100 Octane Premium Benzina Petrol Station  
Gasoline Fuel V-Power 100 Octane Shell Petrol Station  
Gasoline Fuel V-Power Nitro Plus Racing 100 Octane Shell Petrol Station  
Gasoline Fuel V-Power Racing 100 Octane Shell Petrol Station  
Kerosene  
Kerosene F34 without additive CI/LI FS4  
Kerosene PL34  
Kerosene PS2  
Rapeseed methyl esters based fuel  
Unleaded Gasoline Fuel 91 Octane Lot 1  
Unleaded Gasoline Fuel 91 Octane Lot 2  
Unleaded Gasoline Fuel 91 Octane Lot 3  
Unleaded Gasoline Fuel 91 Octane Lot 4  
Unleaded Gasoline Fuel 95 Octane Lot 1

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Unleaded Gasoline Fuel 95 Octane Lot 2  
Unleaded Gasoline Fuel 95 Octane Lot 3  
Unleaded Gasoline Fuel 95 Octane Lot 4  
Unleaded Gasoline Fuel 95 Octane Lot 5  
Unleaded Gasoline Fuel 98 Octane Lot 1  
Unleaded Gasoline Fuel 98 Octane Lot 2

## Other Refinery Products

Benzine  
Crude oil Paraffin  
Exxon Exxsol D 220/230  
Exxon Isopar G  
Exxsol D40  
Gasoline for Pyrolysis  
Gasoline for Pyrolysis  
Chlorinated paraffin  
Isopar H  
Linear Alpha Olefin C 12  
Linear Alpha Olefin C 14  
Linear Alpha Olefin C 18 isomerized  
Linear Alpha Olefin C 24-28  
Mineral Oil, light and heavy  
N-Alcanes Light  
N-Alcanes Light  
Paraffin  
Paraffin Oil  
Paraffin Pipeline Sludge (Azeri light + CPC blend crude Oils)  
Paraffin Tank Sludge (REB Crude Oil)  
Paraffin wax  
Paraffin, Flakes  
Petroleum ether  
Petroleum naphtha  
Polyalphaolefin Oil, viscosity at 40 °C cca 6 cst  
Polybutene Oil Slovis 500  
Shellsol A100  
Shellsol A150ND  
Shellsol D40

## High Volume Petrochemicals

(ortho-)phthalic acid  
1,2-Dichloroethane  
1,4-butanediol  
2,4-diaminotoluene  
2,4-dinitrotoluene  
2-Butanone  
2-ethylhexanol (2-EH)  
Acetanhydride  
Acetic acid

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Acetone  
Acetonecyanhydrine  
Acetophenone  
Acrylamide  
Acrylic acid  
Acrylonitrile  
Adipic acid  
Allyl chloride  
alpha-Methylstyrene  
Aniline  
Anthracene  
Anthraquinone  
Benzene  
Benzoic acid  
Bis(2-ethylhexyl) phthalate  
Bisphenol A  
Caprolactam  
Cumene - isopropylbenzene  
Cyclohexane  
Cyclohexanol  
Cyclohexanone  
Dicyclopentadiene  
Diethanolamine  
Diethylene glycol  
Dimethyl terephthalate  
Dodecylbenzene  
Epichlorohydrine  
Ethanol  
Ethanolamine  
Ethyl acrylate  
Ethylbenzene  
Ethylene glycol  
Formaldehyde  
Fumaric Acid  
Hexamethylenediamine  
Chlorinated paraffin  
Chlorobenzene  
Chlorowax  
iso-Butyl alcohol  
Isooctane  
Isophthalic acid  
Isoprene  
Isopropyl alcohol  
Maleic anhydride  
m-Cresol  
Melamine  
meta-xylene  
Methanol  
Methyl acrylate  
Methyl methacrylate  
Methyl tert-butyl ether  
Methylbenzoate

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Methylenedianiline  
Naphthalene  
n-butanal, butyraldehyde  
n-Butanol  
Nitrobenzene  
o-Cresol  
ortho-Xylene  
Para-xylene  
p-Cresol  
Pentane  
Phenol  
Phthalic anhydride  
Propylene glycol  
Propylene oxide  
p-Toluic Acid  
sec-Butanol  
sec-Butanol  
Styrene  
Terephthalic acid  
tert-Butanol  
Tetrachloroethylene  
Toluene  
Toluene diisocyanate (2,4-TDI)  
Triethanolamine  
Triethylene glycol  
Trichloroethylene  
Trinitrophenol  
Trinitrotoluene  
Urea  
Vinyl acetate  
Xylenes Mixed

## Polymers

Acrylic Copolymer with Styrene  
Bakelite  
Bisphenol-A-polycarbonate  
Bisphenol-A-polycarbonate, 20% glass reinforced  
Buna AP 251, Copolymer EPDM type  
Buna AP 447, Copolymer EPDM type  
Buna CB HC 502 TC, Polymer PB type  
Cycolac AM-AS 48879, Copolymer ABS type  
Cycolac G 101, Copolymer ABS type  
Elvax 265, Copolymer EVA type  
Elvax 360, Copolymer EVA type  
Epon 828  
Kibisan 127, Copolymer SAN type  
Kralex 1502, Copolymer SBR type  
Kralex 1507, Copolymer SBR type  
Melamine Resin  
Melamine-formaldehyde Resin

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Methacrylate oligomer  
Nylon 11  
Nylon 6  
Phenol-formaldehyde resin  
Phenolic Resin  
Phenoxy resin  
Poloxamer 105 (PEG-PPG copolymer)  
Poly(1,3-butylene adipate)  
Poly(1,4-butylene terephthalate)  
Poly(2-octyl acrylate)  
Poly(2-Vinylnaphthalene)  
Poly(acrylic acid) m.w.4000000  
Poly(acrylonitrile:butadiene)  
Poly(butadiene) (45% cis & trans, 55% vinyl)  
Poly(butadiene) (55% cis & trans, 45% vinyl)  
Poly(butadiene:styrene), Buna BL 6533  
Poly(butyl acrylate)  
Poly(butyl methacrylate)  
Poly(cyclohexylene terephthalate)  
Poly(diallylphthalate)  
Poly(diethylene phthalate)  
Poly(diethylene tetrahydrophthalate)  
Poly(ethyl acrylate) #1  
Poly(ethyl methacrylate)  
Poly(ethylene dimethacrylate)  
Poly(ethylene glycol) 6000  
Poly(ethylene isophthalate)  
Poly(ethylene maleate)  
Poly(ethylene succinate)  
Poly(ethylene terephthalate)  
Poly(ethylene terephthalate) #1  
Poly(ethylene:propylene), Daplen KSR 4525  
Poly(hexadecyl methacrylate)  
Poly(chloroprene)  
Poly(isodecyl methacrylate)  
Poly(methacrylic acid) #1  
Poly(methacrylic acid) #2  
Poly(methyl methacrylate)  
Poly(methyl methacrylate:butadiene)  
Poly(propylene glycol) 200000  
Poly(styrene::butadiene) ABA block (28% styrene), Kraton D 1101  
Poly(styrene::butadiene) ABA block (30% styrene), Solprene 411  
Poly(styrene:ethylacrylate)  
Poly(styrene-co-divinylbenzene) amine functionalized  
Poly(styrene-co-divinylbenzene) aminomethylated  
Poly(styrene-ethylene-butylene)  
Poly(vinyl acetate)  
Poly(vinyl alcohol)  
Poly(vinyl butyral)  
Poly(vinyl methyl ether)  
Poly(vinylidene chloride:v vinyl chloride)  
Poly[(acrylic acid):(acrylate):styrene]

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Poly[(acrylic acid):acrylonitrile]  
Poly[(divinyl benzene):styrene]  
Poly[ethylene:(vinyl acetate)]  
Polyalkylbenzene  
Polyester based mixture  
Polyester, adipic Acid  
Polyester, terephthalic acid based, biodegradable  
Polyester, terephthalic acid based, biodegradable, dark green  
Polyester; terephthalate based  
Polyether polyol  
Polyethylene high density, Eraclene MP 90  
Polyethylene linear low density, Escorene LLN100 4YB  
Polyimide  
Polyisobutylene  
Polyolefin CP 164-1  
Polyolefin CP 343-1  
Polyphenylene Oxide, Noryl  
Polypox 480 (Modified cycloaliphatic polyamine)  
Polypox H 016 (Phenol-free polyamine)  
Polypox R 6 (o-cresyl glycidyl ether)  
Polypropylene  
Polypropylene glycol diglycidyl ether  
Polystyrene  
Polystyrene-b-poly(4-vinyl pyridine)  
Polyurethane  
Polyurethane resin  
Polyvinyl alcohol fully hydrolyzed  
Polyvinylbutyral  
Polyvinylchloride  
Polyvinylchloride, plasticized  
SAN 230 NP, Copolymer SAN type  
Umacryl KI, Methylmethacrylate - styrene copolymer

## Petrochemicals and Derivatives

(+/-)-2-Octanol  
(2R,3R)-(-)-2,3-Butanediol  
(2S,3S)-(+)-2,3-Butanediol  
(R)-(-)-2-Butanol  
(R)-(-)-2-Octanol  
(R)-(-)-Ethyl mandelate  
(R)-(+)-1,1'-Bi-2-naphthol  
(S)-(-)-2-Methyl-1-butanol  
(S)-(+)-1,2-Propanediol  
(S)-(+)-1,3-Butanediol  
(S)-(+)-2-Butanol  
(S)-(+)-2-Octanol  
(S)-(+)-Ethyl mandelate  
1,1,1-Trichloro-2-methyl-2-propanol  
1,1,1-Trichloroethane  
1,1,1-Tris(hydroxymethyl)ethane

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1,1,2,2-Tetrabromoethane  
1,1,2,2-Tetrachloroethane  
1,1,2,2-Tetrachloroethane  
1,1,2-Trichloroethane  
1,1,2-Trichlorotrifluoroethane  
1,1,2-Trimethoxyethane  
1,1,3,3-Tetramethylurea  
1,10-Decanediol= Decamethylene glycol  
1,10-Dibromodecane  
1,12-Diaminododecane  
1,18-Dibromoocatadecane  
1,1'-Bi-2-naphthol  
1,1-Dichloroethane  
1,1-Dichloropropane  
1,2,2,3-Tetrachloropropane  
1,2,3,4-Tetrabromobutane  
1,2,3,4-Tetrahydronaphthalene  
1,2,3,4-Tetramethylbenzene  
1,2,3-Tribromopropane  
1,2,3-Trichloropropane  
1,2,4,5-Tetramethylbenzene  
1,2,4-Triacetoxybenzene  
1,2-Bis(2-chloroethoxy)ethane  
1,2-Cycloheptanediol  
1,2-Dibromo-1,1-dichloroethane  
1,2-Dibromoethane  
1,2-Dibromopropane  
1,2-Dibromotetrafluoroethane  
1,2-Dibromotetrachloroethane  
1,2-Dichlorobutane  
1,2-Dichloropropane  
1,2-Naphthoquinone  
1,3,5-Triacetylbenzene  
1,3,5-Trihydroxybenzene dihydrate  
1,3,5-Tri-t-butylbenzene  
1,3-Butanediol  
1,3-Butanediol diacetate  
1,3-Cyclohexanedione  
1,3-Diaminopropane  
1,3-Dibromopropane  
1,3-Dicyclohexylurea  
1,3-Dichloro-2-propanol  
1,3-Dichlorobutane  
1,3-Dichloropropane  
1,3-Dioxolane  
1,3-Diphenoxylbenzene  
1,3-Indandione  
1,3-Propanediol  
1,4-Butanediol diglycidyl ether  
1,4-Cyclohexadiene  
1,4-Cyclohexanediethanol  
1,4-Cyclohexanedione

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1,4-Dibromobutane  
1,4-Dichlorobutane  
1,4-Dimethylnaphthalene  
1,4-Dioxane  
1,4-Diphenyl-1,3-butadiene  
1,4-Pantanediol  
1,4-Piperazinediethanol  
1,5-Cyclooctadiene  
1,5-Diaminoanthraquinone  
1,5-Dibromopentane  
1,5-Dihydroxynaphthalene  
1,5-Dichloroanthraquinone  
1,5-Dimethylnaphthalene  
1,5-Pantanediol  
1,6-Dibromohexane  
1,6-Hexandiol  
1,7-Heptanediol = Heptamethylene glycol  
1,9-Nonanediol  
1-Acetonaphthone  
10-Undecen-1-ol  
1-Acetyl-2-thiourea  
1-Adamantanol  
1-Allyl-2-thiourea  
1-Benzyl-4-piperidone  
1-Bromo-2-chloroethane  
1-Bromo-3-chloropropane  
1-Bromobutane  
1-Bromododecane  
1-Bromoheptane  
1-Bromohexadecane  
1-Bromohexane  
1-Bromononane  
1-Bromoocatadecane  
1-Bromoocatane  
1-Bromopropane  
1-Bromotetradecane  
1-Butoxy-2-Propanol  
1-Decanol  
1-Decene  
1-Docosanol  
1-Dodecanol  
1-Dodecene  
1-Ethyl-2-pyrrolidinone  
1-Ethylpiperidine  
1-Heptadecanol  
1-Heptanol  
1-Heptene  
1-Hexadecanol  
1-Hexadecene  
1-Hexanol  
1-Hydroxy-2,3-dimethylbenzene  
1-Hydroxy-2-phenoxyethane

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1-Chlorobutane  
1-Chlorodecane  
1-Chlorohexane  
1-Chlorotetradecane  
1-Indanone  
1-Iodobutane  
1-Iodomododecane  
1-Iodoctohexane  
1-Methyl-4-piperidone  
1-Methylfluoranthene  
1-Methylnaphthalene  
1-Methylpyrene  
1-Naphthol  
1-Nonadecanol  
1-Nonanol  
1-Octacosane  
1-Octadecanol  
1-Octadecene  
1-Octanol  
1-Pentanol = Amyl alcohol  
1-phenoxy-2-propanol  
1-Phenyl-1,2-ethanediol  
1-Phenyl-1-propanol  
1-Piperidinepropanol  
1-Propanol  
1-Tetradecene  
1-Undecanol  
2- Aminoethanethiol hydrochloride  
2-(2-Butoxyethoxy)ethanol  
2-(Dibutylamino)ethanol  
2-(Ethylamino)ethanol  
2-(Methylthio)ethanol  
2,2,2-Trifluoroethanol  
2,2,2-Trichloroethanol  
2,2'-Binaphthyl  
2,2'-Dichloroethyl ether  
2,2'-Thiodiethanol  
2,2-Dichloroethanol  
2,2-Dichloropropane  
2,3,4,5,6-Pentafluorothiophenol  
2,3,4,5-Tetrachloronitrobenzene  
2,3,4,5-Tetrachlorophenol  
2,3,4,6-Tetrachlorophenol  
2,3,5,6-Tetrachlorophenol  
2,3,5-Trichlorophenol  
2,3,5-Trimethylnaphthalene  
2,3,6-Trichlorophenol  
2,3-Butanediol  
2,3-Dihydroxynaphthalene  
2,3-Dichlorobutane  
2,3-Dichlorophenol  
2,3-Dimethyl-2-butanol

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2,3-Dimethylanisole  
2,4,5-Trichlorophenol  
2,4,6-Tribromoaniline  
2,4,6-Trichlorophenol  
2,4'-Dibromoacetophenone  
2,4-Dichloro-1-naphthol  
2,4-Dichloro-6-nitrophenol  
2,4-Dichlorophenol  
2,5-Dichlorophenol  
2,5-Dimethoxy-2,5-dihydrofuran (cis+trans)  
2,6-Dichloro-4-nitrophenol  
2,6-Dichlorophenol  
2,7,9-Tribromo-9H-fluorene  
2,7-Dibromofluorene  
2,7-Dihydroxynaphthalene  
2,7-Dimethoxynaphthalene  
2'-Acetonaphthone  
2-Acetyl furan  
2-Adamantanone  
2-Amino-2-methyl-1-propanol  
2-Amino-4,6-dinitrophenol  
2-Amino-4-nitro-phenol  
2-Aminobenzophenone  
2-Azacyclononanone  
2-Benzoylnaphthalene  
2-Benzyloxyethanol  
2-Bromo-2-nitro-1,3-propanediol  
2-Bromoanisole  
2-Bromomethyl-1,3-dioxolane  
2-Bromopentane  
2-Bromopropane  
2-Butene-1,4-diol (cis and trans)  
2-Butenoic acid, ethyl ester  
2-Butyn-1-ol  
2-Butyne-1,4-Diol  
2-Carbethoxycyclopentanone  
2-Ethoxyethyl acetate  
2-Ethoxynaphthalene  
2-Ethylhexyl 4-methoxycinnamate  
2-Ethylhexylamine  
2-Ethylpiperidine  
2-Ethyltoluene  
2-Fluorophenol  
2-Hexanol  
2-Hydroxy-1,4-naphthoquinone  
2-Hydroxybenzyl alcohol = Saligenin  
2-Chloro-1,1-dimethoxyethane  
2-Chloro-6-nitrophenol  
2-Chlorobutane  
2-Chloroethanol  
2-Chloronaphthalene  
2-Chlorooctane

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2-Iodoanisole  
2-Isopropyltoluene  
2-Mercaptoethanol  
2-Methoxyethylamine  
2-Methoxynaphthalene  
2-Methyl-1-butanol  
2-Methyl-2-butanol  
2-Methyl-2-hexanol  
2-Methyl-2-pentanol  
2-methyl-4-(phenylmethylene)oxazol-5(4H)-one  
2-Methyl-5-nitrophenol  
2-Methylcyclohexanone  
2-Methylfluoranthene  
2-Methylnaphthalene  
2-Methylnaphthol  
2-Naphthol  
2-Naphthyl acetate  
2-Octanol  
2-Pentanone  
2-Phenoxyethyl isobutyrate  
2-Phenylphenol  
2-Propylcyclohexanone  
2-sec-Butylphenol  
2-Vinylnaphthalene  
3-(Chloromethyl) heptane  
3,3'-Diaminodipropylamine  
3,4-Dimethoxyacetophenone  
3,4-Dimethoxybenzyl alcohol  
3,4-Dinitrophenol  
3,5-Dichlorophenol  
3,5-Dimethylphenol = Xylenol  
3'-Nitroacetophenone  
3-Amino-1-propanol  
3-Diethylamino-1-propanol  
3-Dimethylaminopropylamine  
3-Chloro-1,2-propanediol  
3-Chloro-1-propanol  
3-Chloro-2-butanone  
3-Chlorophenol  
3-Methoxypropylamine  
3-Methyl-1-butanol  
3-Methyl-2-butanone  
4-(Trifluoromethoxy)phenol  
4,4'-Dihydroxybiphenyl  
4'-Methoxyacetophenone  
4'-Nitroacetophenone  
4-Acetyl biphenyl  
4-Acetyl-p-terphenyl  
4-Allyl-2-methoxyphenol  
4-Amino-3-nitrophenol  
4-Benzaminonaphthol  
4'-Bromoacetophenone

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4-Bromoanisole  
4-Bromophenol  
4-Cumylphenol  
4-Ethyl hydroxybenzoate  
4'-Hydroxypropiophenone  
4-Chloro-1-butanol  
4-Chloro-2-isopropyl-5-methylphenol  
4-Chloro-2-nitrophenol  
4-Chloro-3-methylphenol  
4-Chloro-3-methylphenol; 4-Chloro-m-cresol  
4-Chloro-3-nitrophenol  
4-Chlorophenol  
4-Iodoanisole  
4-Iodophenol  
4-Isopropyltoluene, p-Cymene  
4-Methyl-2-pentanone  
4-Methyldaphnetin  
4-Methylmorpholine  
4-Nitrophenol  
4-Nitrophenyl acetate  
4-Octylphenol-ethoxylate  
4-Octylpyrocatechol  
4-Phenylphenol  
4-Phenyltoluene  
4-t-Butylcatechol  
4-t-Butylphenol  
4-Vinylcyclohexene dioxide  
5,5-Dimethyl-1,3-cyclohexanedione  
5,5-Dimethylhydantoin  
5,6,7,8-Tetrahydro-2-naphthol  
5-Chloro-1,3-dimethoxybenzene  
6-Methoxy-1-tetralone  
7-Methylbenzo(a)pyrene  
8-Ethoxycoumarin  
9,10-Dibromoanthracene  
9,10-Diphenylanthracene  
9-Acetylanthracene  
9-Fluorenol  
9-Hydroxyxanthene  
9-Methylanthracene  
Acenaphthene  
Acetamide  
Acetonylacetone  
Acetylacetone  
Alizarin = 1,2-Dihydroxyanthraquinone  
Allyl alcohol  
Allyl sulfide  
Allyl-n-butyl sulfoxide  
Aloin  
Amyl Acetate  
Amylamine  
a-Naphthoflavone

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Anthanthrene  
Anthrone  
Azulene  
Barbituric acid  
Benz(a)anthracene  
Benz(b)anthracene  
Benzil  
Benzo(a)pyrene  
Benzo(b)fluoranthene  
Benzo(b)chrysene  
Benzo(b)naphtho(2,3-d)thiophene  
Benzo(c)chrysene  
Benzo(c)phenanthrene  
Benzo(e)pyrene  
Benzo(g,h,i)perylene  
Benzo(j)fluoranthene  
Benzo(k)fluoranthene  
Benzophenone  
Benzyl acetate  
Benzyl alcohol  
beta-Naphthoquinone-p-oxyaniline  
b-Ionone  
Biphenyl  
Bromoacetaldehyde diacetyl acetal  
Bromobutyrolactone  
Bromodichloromethane  
Bromoethane  
Bromochloromethane  
Bromotrichloromethane  
Butyl acetate  
Butyl ether  
Butyl formate  
Butyl methacrylate  
Butylated hydroxyanisole, BHA  
Camphene  
Carbazole  
Carbon Tetrachloride  
Caryophyllene oxide  
Catechol  
Ceresin  
Cetyl alcohol  
Cetyldimethylamine  
Cinnamyl alcohol  
cis-1,2-Dichloroethylene  
cis-1,4-Dichloro-2-butene  
cis-1,5-Cyclooctanediol  
cis-2-Butene-1,4-diol  
Crotonaldehyde  
Cyclododecan  
Cyclododecanone  
Cyclododecene  
Cycloheptanol

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Cyclohexanecarboxaldehyde  
Cyclohexene  
Cyclohexyl acetate  
Cyclohexylamine  
Cyclohexylmercaptan  
Cyclooctanone  
Cyclooctene  
Cyclopentane  
Cyclopentanol  
Cyclopentanone  
Cyclopentyl bromide  
Decahydronaphthalene  
Decane  
Di(ethylene glycol) distearate  
Diacetone Alcohol  
Diallyl Phthalate  
Dibenz(a,c)anthracene  
Dibenz(a,h)anthracene  
Dibenzo(a,e)pyrene  
Dibenzo(a,i)pyrene  
Dibenzosuberone  
Dibenzoylmethane  
Dibenzylidene Acetone  
Dibromomethane  
Dibutyl ketone  
Dibutyl sulfide  
Dibutylamine  
Dicyclohexylamine  
Diethyl 2-acetylglutarate  
Diethyl acetylmalonate  
Diethyl adipate  
Diethyl benzalmalonate  
Diethyl carbonate  
Diethyl ether  
Diethyl ethylmalonate  
Diethyl fluoromalonate  
Diethyl glutarate  
Diethyl isoamylmalonate  
Diethyl malonate  
Diethyl methylmalonate  
Diethyl oxalate  
Diethyl phenylmalonate  
Diethyl phthalate  
Diethyl pimelate  
Diethyl propylmalonate  
Diethyl suberate  
Diethyl succinate  
Diethyl Sulfate  
Diethyl t-butylmalonate  
Diethyl-2-formylsuccinate  
Diethyl-3-oxoglutarate  
Diethylamine

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Diethylene Glycol Dibutyl Ether  
Diethylene glycol dimethyl ether  
Diethylenediamine  
Diethylenetriamine  
Dihydropyran  
Dichloromethane  
Diiodomethane  
Diisobutyl carbonate  
Diisobutyl phthalate  
Diisobutylketone  
Diisodecyl Phthalate  
Di-isononyl Phthalate  
Diisopropyl ether  
Diisopropylamine  
Dilauryl thiodipropionate  
Dimethyl 1,3-acetonedicarboxylate  
Dimethyl 3-methylglutaconate  
Dimethyl Aminomalonate Hydrochloride  
Dimethyl phthalate  
Dimethyl succinate  
Dimethyl Sulfate  
Dimethylethylbenzene  
Dimethyl-L-tartrate  
Dimethylsulfoxide  
Dinitrobenzil  
di-n-Octyl phthalate  
Dipentyl phthalate  
Diphenylfulvene  
Dipropyl phthalate  
Dipropylene Glycol  
Di-t-butyl dicarbonate  
Ditridecyl Phthalate  
Diundecyl phthalate  
Dodecane  
Dodecyl acetate  
Dodecyl aldehyde  
Dodecylamine  
Dowanol DPM, Di(Propylene Glycol) Methyl Ether  
Dowanol EPH  
Dubacid  
Ethanol-1-nitro-1-phenyl benzoate  
Ethyl 2,3-dibromopropionate  
Ethyl 2-chloroacetoacetate  
Ethyl 2-methylacetoacetate  
Ethyl 3-mercaptopropionate  
Ethyl 5-bromoalvalerate  
Ethyl acetate  
Ethyl acetoacetate  
Ethyl benzoate  
Ethyl benzoylformate  
Ethyl bromoacetate  
Ethyl butyrate

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Ethyl caproate  
Ethyl caprylate  
Ethyl Carbamate  
Ethyl cinnamate  
Ethyl crotonate  
Ethyl dihydrolutidinecarboxylate  
Ethyl D-lactate  
Ethyl DL-mandelate  
Ethyl dodecanoate  
Ethyl formate  
Ethyl chloroacetate  
Ethyl Lactate  
Ethyl levulinate  
Ethyl maltol  
Ethyl palmitate  
Ethyl salicylate  
Ethyl-1,2-dibromoisobutyrate  
Ethyl-3-nitrobenzoate  
Ethyl-4-nitrobenzoate  
Ethylamine hydrochloride  
Ethylene carbonate  
Ethylene Diglycol Monoethyl Ether  
Ethylene glycol diformate  
Ethylene glycol dimethacrylate  
Ethylene glycol dimethyl ether  
Ethylene glycol monobutyl ether  
Ethylene glycol monoethyl ether  
Ethylene glycol monomethyl ether  
Ethylenediamine  
Ethylurea  
Ethylxanthic acid, potassium salt  
Fluoranthene  
Fluorene  
Fluowax Pink  
Formamide  
 $\gamma$ -Butyrolactone  
 $\gamma$ -Caprolactone  
Glycerin  
 $\gamma$ -Phenyl- $\gamma$ -butyrolactone  
Guaifenesin  
 $\gamma$ -Valerolactone  
Heneicosane  
Heptadecane  
Heptaldehyde  
Heptane  
Hexabromocyclododecane  
Hexachloro-1,3-butadiene  
Hexachloroethane  
Hexamethylbenzene  
Hexamethylenetetramine  
Hexane  
Hexanol

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Hexatriacontane  
Hydroquinone  
Chloral hydrate  
Chloroacetaldehyde diethyl acetal  
Chloroacetamide  
Chloroacetone  
Chloroform  
Chrysene  
Indene  
Indeno(1,2,3-cd)pyrene  
Iodoform  
Isoamyl acetate  
Isoamyl ether  
Isoamyl formate  
Isoamyl salicylate  
Isoamylbenzene  
Isobutyl-2-ethyl hexanoate  
Isobutylbenzene  
Isobutylbromide  
Isocyanic acid  
Isopropenyl acetate  
Isopropyl Glycidyl Ether  
Isopropylamine  
L-(+)-Lactic acid, ethyl ester  
Malonaldehyde bis(diethyl acetal)  
Maranil A  
Meglumine  
Menthol  
Methanesulfonic acid  
Methoxyflurane  
Methyl 1-naphthaleneacetate  
Methyl Crotonate  
Methyl dichloroacetate  
Methyl ethylphenyl malonate  
Methyl formate  
Methyl chloroacetate  
Methyl Oleate  
Methyl-3-aminocrotonate  
Methylamine Hydrochloride  
Methylcyclohexane  
Methylcyclohexanol  
Methylcyclohexanols  
Methylenedilaurate  
Methylhydroquinone  
Microcrystalline wax  
mono-Methyl terephthalate  
Morpholine  
Morpholine hydrobromide  
 $N,N,N^{\prime},N^{\prime\prime}$ -Tetramethylethylenediamine  
N,N-Diethylethanolamine  
N,N-Diisopropylethylamine  
N,N-Dimethylformamide

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N,N'-Methylenebisacrylamide  
Naphthoresorcinol  
N-Bromosuccinimide  
N-Decyl aldehyde  
n-Dotriacontane  
Neopentyl alcohol  
Neopentyl glycol  
N-Formylmorpholine  
N-Methylacetamide  
N-Methylcyclohexylamine  
N-Methylformamide  
N-methylpyrrolidone  
Nonacosane  
Nonylamine  
Nonylphenol  
n-Pentyl Formate  
o-Bromaniline  
Octadecylamine  
Octafluoronaphthalene  
Octylamine  
Octylbenzene  
o-Chlorophenol  
o-Propenyl guaiacol  
Orcinol monohydrate  
p-Aminoacetophenone  
p-Benzenazoresorcin  
Pentabromophenol  
Pentaerythritol  
Pentafluorophenol  
Pentachloroethane  
Pentachlorophenol  
Pentyl propionate  
Pentylenetetrazole  
Perylene  
Petroleum Sulfonate  
Petrosulfonate calcium  
Petrosulfonate Sodium  
Phenanthrene  
Phenethyl alcohol  
Phenyl Ether  
Phenyl Salicylate  
Phenylurea  
Phlorizin  
Phloroglucinol, 1,3,5-Benzenetriol  
Phthalide  
p-Chloroanisole  
Piperazine dihydrochloride  
Piperidine  
p-Octylphenol  
Polyalkylbenzene  
Polyglyceryl Oleate  
Propionaldehyde

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Propyl acetate  
Propylene carbonate  
p-Terphenyl = 1,4-Diphenylbenzene  
Pyrene  
Pyrogallol = 1,2,3-Trihydroxybenzene  
Quinhydrone  
R-(-)-1,3-Butanediol  
Resorcylidene thiocarbazone  
Rhodanine  
Salicin  
S-binol, (S)-(-)-1,1'-Bi-2-naphthol  
Sodium Alkyl Aryl Sulfonate  
Sodium Cetyl sulfate  
Sodium Dodecylbenzene Sulfonate  
Sodium Toluenesulfonate  
Stilbene  
Styrene oxide  
Succinamide  
t-Butyl Acetate  
t-Butylamine  
t-Butylphenol  
Tetrabutylammonium iodide  
Tetracosane  
Tetrahydrofuran  
Tetrahydrofurfuryl alcohol  
Tetrahydrothiophene  
Tetramethylene sulfone  
Thioacetamide  
Thiosemicarbazide  
Thiourea  
Thymol = 3-p-Cymenol  
TPM, Tripropylene Glycol (Mono) Methyl Ether  
TPNB, Tripropylene Glycol n-Butyl Ether  
trans-1,2-Cyclohexanediol  
trans-1,2-Dibromocyclohexane  
trans-1,2-Dichloroethylene  
trans-1,4-Dichloro-2-butene  
trans-4-Phenyl-3-buten-2-one  
Tribromophenol  
Tributylamine  
Tributyrin  
Tridecane  
Triethanolamine hydrochloride  
Triethylamine  
Triethylene Glycol Monobutylether  
Triethylenetetramine  
Trimethylacetamide  
Trimethylsulfoxonium iodide  
Trioctylamine  
Tripelargonin  
Triphenylmethanol  
Tripropylamine

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Tris(hydroxymethyl)aminomethane hydrochloride  
Wax  
Wax V  
Wax, Emulsifying

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