

# PRODUCTION AND DELIVERIES OF OIL AND PETROLEUM PRODUCTS

## METHODOLOGICAL NOTES

### Description of the main indicators observed:

#### **Production**

Production of finished products at the refineries or blending plants. Excludes refinery losses, but includes refinery fuel.

#### **Imports and Exports**

Quantities are considered as imported or exported when they have crossed the political boundaries of the country, whether customs clearance has taken place or not. The indicators include imports/exports from third countries (Extrastat) and/or intra-EU imports from EU member states (Intrastat).

#### **International marine bunkers**

Quantities of fuels delivered to ships of all flags that are engaged in international navigation. The international navigation may take place at sea, on inland lakes and waterways, and in coastal waters. Excluded is:

- consumption by ships engaged in domestic navigation; the domestic/international split should be determined based on port of departure and port of arrival, and not by the flag or nationality of the ship,
- consumption by fishing vessels, consumption by military forces.

#### **Stock changes**

The difference between the opening stock level and closing stock level for stocks held on national territory. Unless otherwise specified, a stock build is shown as a negative number and a stock draw is shown as a positive number.

**Refinery intake** is the quantities of raw materials entered for processing in the oil refineries. It is calculated as indigenous production + receipts from other sources + backflows + product transferred + imports – exports – direct use – stock changes.

**Gross inland deliveries** of petroleum products are defined as: primary product receipts + refinery gross output + recycled products – refinery fuel + imports – exports – international marine bunkers + interproduct transfers – products transferred – stock changes.

### Description of the petroleum products observed:

#### **Crude oil**

Crude oil is a mineral oil of natural origin comprising a mixture of hydrocarbons and associated impurities, such as sulphur. It exists in the liquid state under normal surface temperature and pressure and its physical characteristics (density, viscosity, etc.) are highly variable. This category includes field or lease condensate recovered from associated and non-associated gas where it is commingled with the commercial crude oil stream.

#### **Refinery feedstocks**

A refinery feedstock is a processed oil destined for further processing (e.g. straight run fuel oil or vacuum gas oil) excluding blending. With further processing, it will be transformed into one or more components and/or finished products. This definition also covers returns from the petrochemical industry to the refining industry (e.g. pyrolysis gasoline, C4 fractions, gasoil and fuel oil fractions).

#### **Additives/oxygenates**

Additives are non-hydrocarbon compounds added to or blended with petroleum products to modify their properties (octane, cetane, cold properties, etc.). Additives include oxygenates (such as alcohols (methanol, ethanol), ethers (methyl tertiary butyl ether (MTBE), ethyl tertiary butyl ether (ETBE), tertiary amyl methyl ether (TAME), etc.), esters (rapeseed oil or dimethylester, etc.), chemical compounds (such as tetramethyl lead (TML), tetraethyl lead (TEL) and detergents).

#### **Other hydrocarbons**

Synthetic crude oil from tar sands, shale oil, etc., liquids from coal liquefaction, output of liquids from natural gas conversion into gasoline, and emulsified oils (e.g. orimulsion); excludes oil shale; includes the shale oil (secondary product). Includes the refinery intake of natural gas.

#### **Refinery gas**

Refinery gas includes a mixture of non-condensed gases mainly consisting of hydrogen, methane, ethane and olefins obtained during the distillation of crude oil or treatment of oil products (e.g. cracking) in refineries. This also includes gases, which are returned from the petrochemical industry.

#### **Liquefied petroleum gases**

LPG are light paraffinic hydrocarbons derived from refinery processes, crude oil stabilisation and natural gas processing plants. They consist mainly of propane (C<sub>3</sub>H<sub>8</sub>) and butane (C<sub>4</sub>H<sub>10</sub>) or a combination of the two. They could also include propylene, butylene, isopropylene and isobutylene. LPG are normally liquefied under pressure for transportation and storage.

#### **Naphtha**

Naphtha is a feedstock destined for either the petrochemical industry (e.g. ethylene manufacture or aromatics production) or for gasoline production by reforming or isomerisation within the refinery. Naphtha comprises material in the 30°C and 210°C

distillation range or part of this range.

**Motor gasoline**

Motor gasoline consists of a mixture of light hydrocarbons distilling at between 35°C and 215°C. It is used as a fuel for land-based spark ignition engines. Motor gasoline may include additives, oxygenates and octane enhancers, including lead compounds. Includes motor gasoline blending components (excluding additives/ oxygenates), e.g. alkylates, isomerate, reformate, cracked gasoline destined for use as finished motor gasoline. Includes biogasoline.

**Kerosene type jet fuel**

Distillate used for aviation turbine power units. It has the same distillation characteristics at between 150°C and 300°C (generally not above 250°C) and flash point as kerosene. In addition, it has particular specifications (such as freezing point) which are established by the International Air Transport Association.

**Transport diesel/Heating and other gasoil**

Gas/diesel oil is primarily a medium distillate distilling at between 180°C and 380°C. Includes blending components. Several grades are available depending on uses. Gas/diesel oil includes on-road diesel oil for diesel compression ignition engines of cars and trucks. Gas/diesel oil includes light heating oil for industrial and commercial uses, marine diesel and diesel used in rail traffic, other gas oil including heavy gas oils which distil at between 380°C and 540°C and which are used as petrochemical feedstocks. Includes biodiesel.

**Fuel oil**

All residual (heavy) fuel oils (including those obtained by blending). Kinematic viscosity is above 10 cSt at 80°C. The flash point is always above 50°C and density is always more than 0.90 kg/l. Observed are:

- Low sulphur fuel oil (lower than 1 %).
- High sulphur fuel oil (of 1 % or higher).

**Petroleum coke**

Black solid by-product, obtained mainly by cracking and carbonising petroleum derived feedstock, vacuum bottoms, tar and pitches in processes such as delayed coking or fluid coking. It consists mainly of carbon (90-95%) and has a low ash content. It is used as a feedstock in coke ovens for the steel industry, for heating purposes, for electrode manufacture and for the production of chemicals. The two most important qualities are 'green coke' and 'calcinated coke'. Includes 'catalyst coke' deposited on the catalyst during refining processes; this coke is not recoverable and is usually burned as refinery fuel.

**Other petroleum products**

All products not specifically mentioned above, for example: white spirit and SBP, lubricants, bitumen, paraffin waxes, tar and sulphur. Includes aromatics (e.g. BTX or benzene, toluene and xylene) and olefins (e.g. propylene) produced within refineries.

**Unit of measure**

Quantities of oil and petroleum products are presented in thousand tones.