



# NYCO

AVIATION & MILITARY LUBRICANTS  
HIGH PERFORMANCE ESTERS  
SPECIALTY LUBRICANTS

# NYCO SA

## Specialist of Synthetic Esters and Specialty Lubricants

- Sole European producer
- International network
- Highest quality standards

### Company Profile

- French independent and privately-owned company
- Turnover > 40 M€
- 80% export to more than 80 countries
- 130 people fully dedicated to lubricant business
- Production facility in Belgium
- Worldwide Distributor / Agent network

Production plant  
(Tournai - Belgium)

R&D center  
(Neuville)

Head office (Paris)



# Markets and applications

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## Two Business segments

### Aviation & military (60% of turnover)



Complete range of lubricants with international approvals for :

- Defence forces
- Civil aviation
- Power generation



### Automotive & Industry (40% of turnover)



Full range of :

- Synthetic ester base stocks sold to the lubricant producers
- High performance finished lubricants for severe to very severe applications
- Biodegradable lubricants formulated on high quality synthetic esters



# Internationally recognized brands

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By providing highly valuable solutions, NYCO is the reference supplier for Air-Sea-Land Forces all over the world, civil aviation operators, leading lubricant producers, etc... with the following brands :

Gas turbine oils :	Turbonycoil
Hydraulic fluids :	Hydraunycoil
Greases :	Nycogrease
Lubricating oils :	Nycolube
Protection fluids :	Nycoprotec
Dielectric fluids :	Nycodiel
Synthetic Ester Bases :	Nycobase

# Production Plant (Tournai – Belgium)

**A highly performing & flexible tool  
to match market requirements**

**Synthetic Esters production**

2 lines (10 and 50 m<sup>3</sup> reactors)

**Lubricant formulation**

4 lines (from 1 to 100 m<sup>3</sup> blending capacity)

**Grease production**

2 lines (0,5 and 2 t batch capacity)

**Packaging**

(from 0,5 l to 20 m<sup>3</sup> bulk)

ISO 9001 – ISO 14001



# Research & Development :

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**Dedicated to innovation, process efficiency, quality improvements & customer support**

*(High skill teams, research expertise, pilots & analytical resources)*

Strong resources ( $\approx 4\%$  of sales) to :



- Be the long term leader in specialty lubricants
- Develop innovative technologies in ester base stocks and additives
- Support our customers in their innovation & development
- Ensure process and quality control

# Aviation and Military segment

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**50 years field experience in defence segment**  
**Pioneer in turbine oil development (since Mirage in 1959)**  
**Dedication to aviation technology performance**

- 1959 : Development of Turbonycoil 13B for Mirage (French AF)
- 1960–75 : Extention to other lubricants (hydraulic fluids, greases...)
- 1975-80 : Development of turbine oil for Russian aircraft (Tupolev, Antonov, Yakovlev...)
- 1979 : Approval of Turbonycoil 160 by USAF (F16)
- 1985 : Approval of Turbonycoil 600 by USNAVY (the STD civil aviation candidate)
- 1995 : Turbonycoil 400 by USAF (F22)
- Currently finalising Turbonycoil 640 (the High perf Civil aviation candidate)



# A complete range of lubricants...

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## From airframe lubricants to turbine engine oil

### Approved by military authorities:

USAF, NAVAIR, USARMY, DCSEA, MoD...

### Approved by engine manufacturers:

SNECMA, GE, RR, P&W, P&W Canada..

### Approved by aircraft manufacturers:

Airbus, Boeing, Embraer, Dassault, Eurocopter...



THE POWER  
OF FLIGHT



Rolls-Royce



**Pratt & Whitney Canada**  
A United Technologies Company



**Turbomeca**  
Groupe SAFRAN



**Pratt & Whitney**  
A United Technologies Company



**Snecma**  
Groupe SAFRAN



# ...for demanding customers throughout the world

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## Armies & Air Forces

(80 countries)



## Aerospace OEMs

(Airbus, Eurocopter, Dassault, BF Goodrich, General Dynamics...)



## More than 40 Airlines

(Air France, Lufthansa, Korean Air, South African Airways, Finnair, Alitalia, Aeroflot, Ukraine International Airlines...)



## Operators of aero-derivative gas turbines

(Off-shore, Industrial plants, Powergen)

➤ *Exclusive distribution/rebrand agreements with major oil companies (Total, Chevron, AGIP, Conoco, StatoilHydro...)*

# TURBONYCOIL 600 - Overview

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## **Turbonycoil 600 :**

- Polyol ester-based lubricating oil designed for gas turbine engines
- Viscosity : 5 cSt @ 100°C

## **Qualifications :**

- O-156
- MIL-PRF-23699 F class STD (since 1985)
- DCSEA 299/A
- DEF STAN 91-101 Iss. 3
- OX-27 / OX-28
- AS 5780 class SPC (in process)

## **Strengths :**

- Engine cleanliness (excellent non-coking performance)
- Low volatility and high flash point
- Low foaming tendency
- Superior lubricity
- Health & Safety profile (does not contain Tri-Cresyl-Phosphate TCP)

# TURBONYCOIL 600 – Why ?

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## Meet performance and safety

- Turbonycoil was developed to meet MIL-PRF-23699 (started 1980)
- As TCP was listed in Table n°34 of occupational disease published by French Ministry of Health, NYCO developed an alternative anti-wear additive based on TIPP (tri-isopropyl phenyl phosphate) :
  - Does not deteriorate the oil performance
  - Does not contain any of the TCP isomers (not detectable)
  - Does not exhibit the same classification

Next step :

Confirm toxicity status through comparative testing

# TURBONYCOIL 600 - Approvals

## Approved by all major engine manufacturers :

### Military engines :

- more than 40 engines (GE, PW, Allison, RR, Snecma, Honeywell / Allied Signal, Turbomeca...)

### Civil Engines :

#### Aircraft applications :

- CFM International : CFM56-3, -5A/B/C, -7
- Rolls-Royce : RB211, BR715, AE3007, Model 250, Avon, Olympus, Tyne, Spey
- IAE : V2500 series
- Pratt & Whitney Canada : PT6-A, PW 308-A/C
- Turbomeca : All models (Astazou, Bastan, Arriel, Arrius, Makila...)

#### Ground applications :

- Rolls-Royce : 501 K, RB211, Avon, Olympus, Tyne, Spey
- General Electric : LM ground gas turbine (all models)

### Auxiliary Power Unit :

- Honeywell : APU 85-129, 131-9 A/B , 331-200/250 models
- Hamilton Sundstrand : all APU models (APS 2000, 3200, 5000)



**> 60% of  
installed  
commercial  
engine**

# TURBONYCOIL 600 – Service Experience

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## Over 20 million hours operation

### Air Forces :

20 years of successful flight operation in  
FR, GE, UK, NL, BE, SP, IT, NO, CA...

➔ 7 million h

### Industrial aero-derivative gas turbines :

Oil & Gas (on & off-shore, pipeline boosting), Power generation,  
Marine propulsion

➔ 15 million h

### Civil Aviation :

#### **CFM56** :

- Airbus A320 (CFM56-5A/B)
- Boeing 737 (CFM56-3B/C)

#### **RB211** :

- Boeing 757 (RB211)

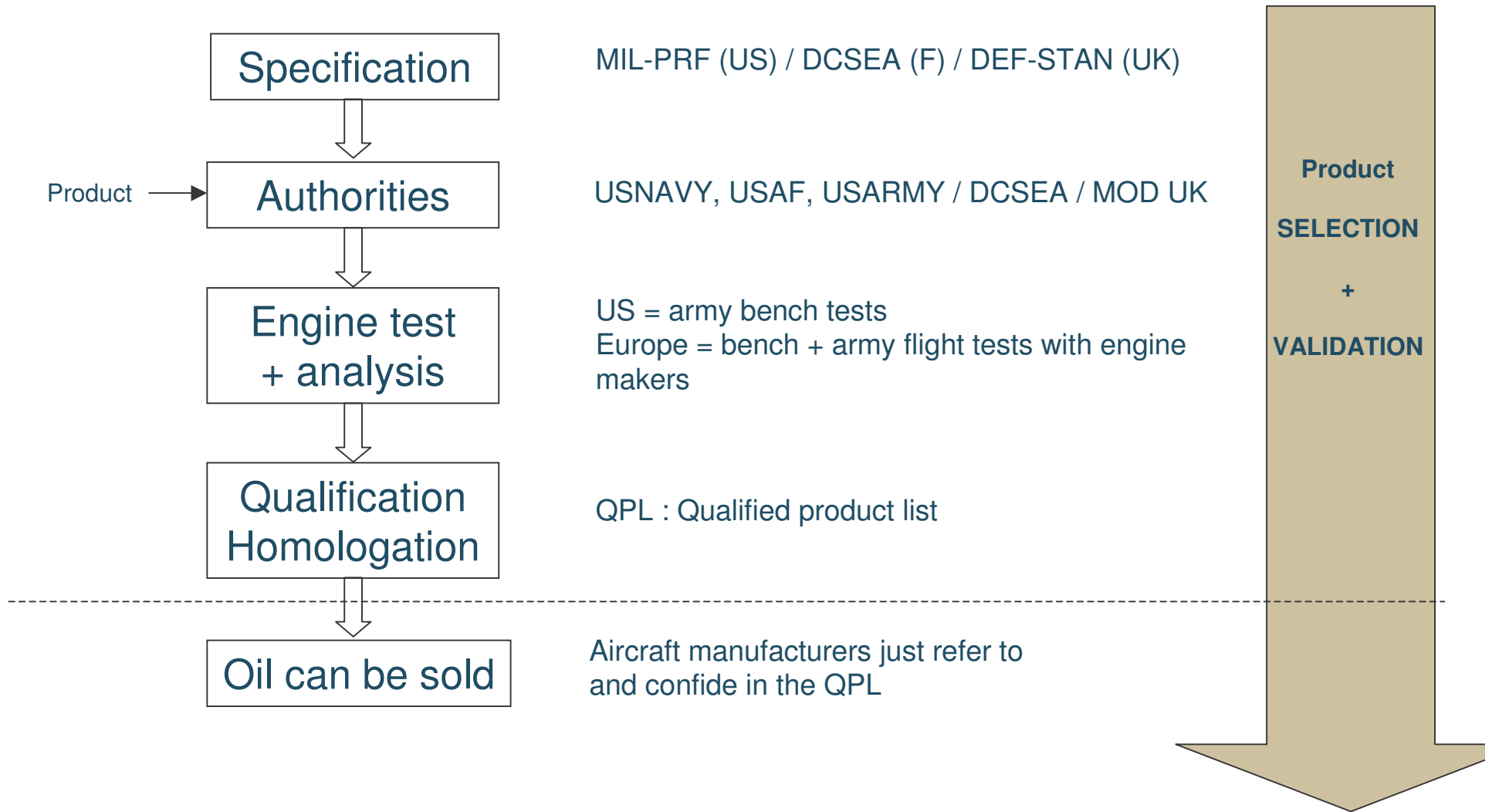
#### **PW100 series** :

- ATR (PW127) : CSU on-going

➔ ~1 million h

**Acknowledged by engine manufacturers as a top performer  
in the STD oil class**

# Oil validation process in Military segment



# Oil validation process in Industrial ground turbines

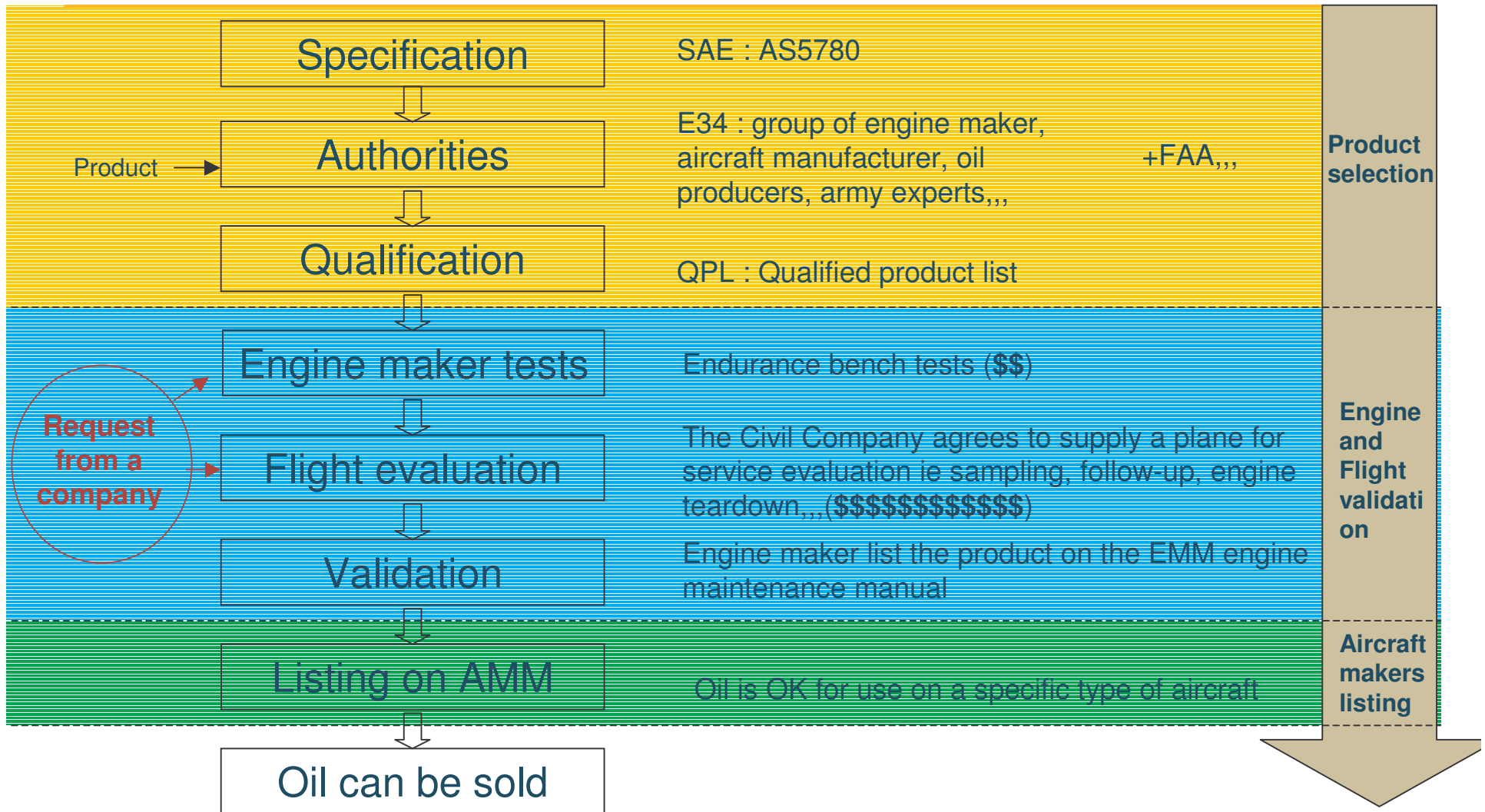
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## Engine makers are the key deciders

- Some just rely on the military qualification (QPL)
- Some other ask for field validation :  
Subject to requirement from the final customer (Oil & Gas companies)

**Estimation of risk is reduced  
since it is for ground applications**

# Oil validation process in Civil Aviation





# Contact us

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The screenshot displays the NYCO S.A. website interface. On the left, a dark blue sidebar contains the NYCO logo (a stylized lion) and a French flag. Below the logo, the sidebar lists navigation options: 'The company', 'Products' (with sub-items: Military products, Civil aviation products, Synthetic lubricants, Synthetic ester), 'Production plant', 'Research and development', 'Quality', and 'Contact us'. The main content area has a blue background and features the heading 'Welcome at NYCO S.A.'. Below this, it states 'The specialist of:' followed by a bulleted list of product categories: 'Military lubricants' (gas turbine oils, hydraulic fluids, greases, lubricating oils, corrosion preventives, etc.), 'Civil aviation lubricants' (validated by engine and aircraft manufacturers), 'Synthetic lubricants' (for industrial and automotive high performance applications), and 'Synthetic ester basestocks' (for lubricants and other applications). To the right of the text, there are two images: an F-16 fighter jet in flight and a 3D ball-and-stick molecular model of a complex organic structure.