Alternative Fuels to 100LL Aviation Gasoline
Stakeholders' Workshop
National Research Council Canada
Ottawa
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Total Unleaded AVGAS in EUROPE

Pascale DEMOMENT

To an Unleaded Aviation Gasoline

- **2011 : Decrease of 100LL lead content by 20% (100VLL)**
  - Without any change of properties, characteristics and quality
- **2011 : Avgas UL 91, a new unleaded gasoline from TOTAL :**
  - For Low power engines , like ROTAX,
  - For engines approved for MOGAS which have MON < 91 and RON < 96,
  - Better than MOGAS which:
    - changes from one country to another
    - has an increasing oxygen (ethanol) content
    - has changing seasonal properties (i.e: French MOGAS vapour pressure 60-90 kPa winter, 20-50 kPa summer)
  - Represents a real aviation gasoline, with worldwide specifications agreed and overseen by the Aviation Industry.

To an Unleaded Aviation Gasoline

Avgas UL 91, a new unleaded gasoline from TOTAL :

- Avgas UL91 has been tested by the main OEMs and approved by LYCOMING and ROTAX (Rotax Service Instruction SI-912-016/SI-914-019 Revision 5 and Lycoming Service Instruction No. 1070R) and Cessna (SEL -12-01)
- Supplied in Europe:

  France, UK, Belgium, Germany, Italy, Switzerland.

Development is still slow because the support of the engine and the aircraft manufacturers is moderated / UL91 is not readily put forward in manufacturer's operating instructions.

AVGAS 91 UL

NEW UNLEADED FUEL

To an Unleaded Aviation Gasoline

➢ **2016-2018 ? : A future available unleaded gasoline?**

- Many years of research effort to develop an unleaded aviation gasoline.
- A difficult equation to solve :

  Reduced Toxicology + Same Performance + Acceptable Cost

- Many 100UL options under development today do not present satisfactory results for toxicology and economy.
- We need the input of engine manufacturers to find a pertinent candidate: what level of the MON/RON is able to satisfy all the fleet ?

Thank You