



Biofuels technical standards and their role in market development

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- European Committee for Standardization
- CEN contributes to the objectives of the European Union with voluntary technical standards which promote free trade and complete the single market
- Multi-stakeholder, transparent process
- 1 CEN standard = access to 31 European countries and several affiliates (+ worldwide, via cooperation with a.o. ISO and ASTM)

CEN and biofuels

- Supports EU Directives on fuels quality/emissions (98/70 up to 2009/30), promotion of use of bio-fuels for transport (2003/30), renewable energy (2009/28)
- Several Mandates in relation to solid biofuels, solid recovered fuels, fatty acid (m)ethyl ester and bio-ethanol
- Relevant CEN Technical Bodies:
 - **CEN/TC 19 “Gaseous and liquid fuels, lubricants and related products on petroleum, synthetic and biological origin”**
 - **CEN/TC 383 “Sustainably produced biomass for energy applications”**
 - Workshops on E85, water-emulsified diesel, paraffinic diesel and pure plant oil

CEN/TC 19 fuel standards in response

- EN 228 unleaded petrol
- EN 590 automotive diesel fuel
- EN 14214 automotive biodiesel (FAME) fuel
all with specific national climatic and labelling requirements
- EN 14274 fuels quality monitoring system
- EN 15376 ethanol blend component
plus test methods for all the included properties



Unleaded petrol in EU



EN 15376: Ethanol

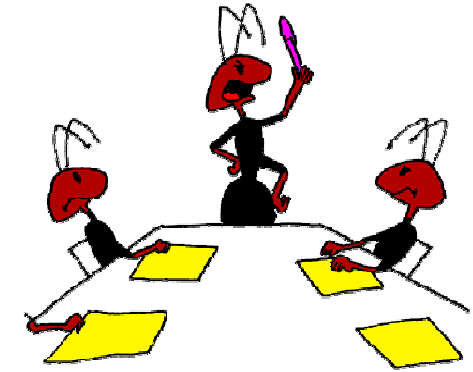


- Ethanol blend component specification implemented in 2007
- Restricts process and logistics contaminants
- EN 228:2008 (petrol) allows 5% ethanol, following EC Fuel Quality Directive
- parallel development to draft E85 fuel specification (CEN/TS 15293)

Future of ethanol

Issues to solve:

- *inorganic chloride (catalyst impact)*
- *P. Mg, Ca (after treatment systems)*
- *sulfates (fuel station filters and Euro V engines)*
- *water content (corrosion vs. solution at higher%)*
- *acidity vs. electrical conductivity*
- *logistic chain impacts*
- *0-100% blend component feasibility?*



Future of petrol



Revision of EN 228

- Allow up to 10% ethanol (align with revised Fuels Quality Directive (2009/30/EC))
- Protection grade, waiver, etc. to be included
- Manganese test development for MMT limitation
- Volatility requirements with E10
- Density impacts
- Impacts of other metals (Fe)
- Octane measurement on high ethanol blends

Diesel fuel in EU



EN 14214 Biodiesel

- Biodiesel specification implemented in 2003, revised in 2008
- Properties and limits to protect performance and durability of combustion equipment
- Fuel can be used at 100% in adapted vehicles, or as a blend component in conventional diesel
- EN 590 (European diesel spec) allows 7% biodiesel since April 2009



CEN and the outside world

- EU is a forerunner with (bio)diesel specs
- higher biodiesel blends driven by:
 - domestic feedstock capacity,
 - energy security and decrease in import of diesel,
 - renewable energy policy (U.S. and EU)
- B100 specs usually reflect EN 14214
- B20 and more – rare products
- problems to be solved anywhere: cold flow, stability, gelification – European experience will be essential



EN 14214 questions



- political requirement to go to 10 % or beyond
- ? release iodine value completely
- ? allow for FAEE
- ? oil dilution effects on DPF-exhaust systems
- ? deposit forming
- ? effects on new injection systems
- ? effects on catalytic converters

Future of (bio)diesel



Revision of EN 14124:2008

- intermediate cold operability solution via limiting saturated mono-glycerides and sterol-glucosides
- limitation of P, Na, K, Ca and Mg content
- FAME cetane measurement difficulties

Development of B30 standalone specification

EN 590 (diesel spec) to allow B10

- cold operability and filterability issues and correlation ?
- improved stability requirements + tests + correlation ?

And next

Despite the controversies that have surrounded biofuels over the last two years (e.g. ILUC, sustainability, food v. fuel, etc.) biofuels supply and demand are projected to grow

- Ethanol: 80% increase in worldwide demand 2009-2015
- Biodiesel: demand could triple between 2009-2015

Higher blends (>10%) seem necessary even before 2020 in order to allow suppliers to fulfill FQD requirements

Conclusions

CEN provides technical solutions for EC Directives

EN 14214 and EN 15376 provide security for the customer and the future biofuel supplier's market

Such solutions take time, but we try to accelerate where possible

Thank you for your attention!

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