

→ Title CEN Biofuels Specification

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19th March, 2009

Background - Methodology

- Each region created expert teams representing sectors and knowledge
 - Bioethanol team (5 regional experts including a leader)
 - Biodiesel team (5 regional experts including a leader)
- Regional teams contact was by teleconference and one face-2-face
- Assembled and translated existing standards (ABNT, ASTM and CEN)
- Converted to a common basis
 - US denatured std converted to un-denatured basis
 - EU converted composition from mass to volumetric basis
- Test methods procedures compared and differences highlighted
- Standards compared as existed in 2007 – many parameters different

Background - Methodology

- Prioritized by identifying parameters which impact on trade flows (imports/exports)
 - Controversial approach for technical experts
 - Recognised it was the best pragmatic approach
- All parameters listed either category A, B or C
- Report written by Regional team leaders and delivered end 2007
- White paper published January 2008

Potential Biofuel Trade Flows

→ Ethanol

- Brazil exports to US and EU
- Potential for US to export to EU
- EU very unlikely to export

→ Biodiesel

- EU imports raw vegetable oils for processing or FAME
- EU very unlikely to export veg oils or FAME
- US export FAME to EU
- South America exports FAME to EU and US



Biodiesel Differences

Category A <i>similar</i>	Category B <i>significant differences</i>	Category C <i>fundamental differences</i>
sulfated ash	total glycerol content	sulfur content
alkali and alkaline earth metal content	phosphorus content	cold climate operability
free glycerol content	carbon residue	cetane number
copper strip corrosion	ester content	oxidation stability
methanol & ethanol content	distillation temperature	mono, di-, tri-acylglycerides
acid number	flash point	density
	total contamination	kinematic viscosity
	water content & sediment	iodine number
		linolenic acid content
		polyunsaturated methyl ester

Ethanol Differences

Category <i>similar</i> ⁵	A Category <i>significant differences</i>	B Category <i>fundamental differences</i>	C
color	ethanol content	water content	
appearance	acidity		
density	phosphorus content		
sulfate content	pHe		
sulfur content	gum / evaporation residue		
copper content	chloride content		
iron content			
sodium content			
electrolytic conductivity			

Conclusion of Ethanol/Biodiesel TF

- No technical difference which constitute a “Barrier to trade” however, there are some hurdles
- EU Ethanol spec requires
 - Water limit requires additional drying
 - Due to test method differences additional testing
- EU Biodiesel specs
 - Iodine value appears to prohibit some feedstocks
 - Resolved by blending with suitable veg oils
 - Due to test method differences additional testing
- Additional industry costs are small compared with import duties

Hurdles to trade

→ Test method differences

- Additional testing – may be zero cost
- Check for test method equivalence and define it under the laboratory management system (ISO 17025)

→ Specification limits

- Blending with other vegetable oils – small cost
- Additional drying of ethanol
 - Investing in drying equipment at import terminal
 - Additional processing at production source

Specification Update

→ Bioethanol

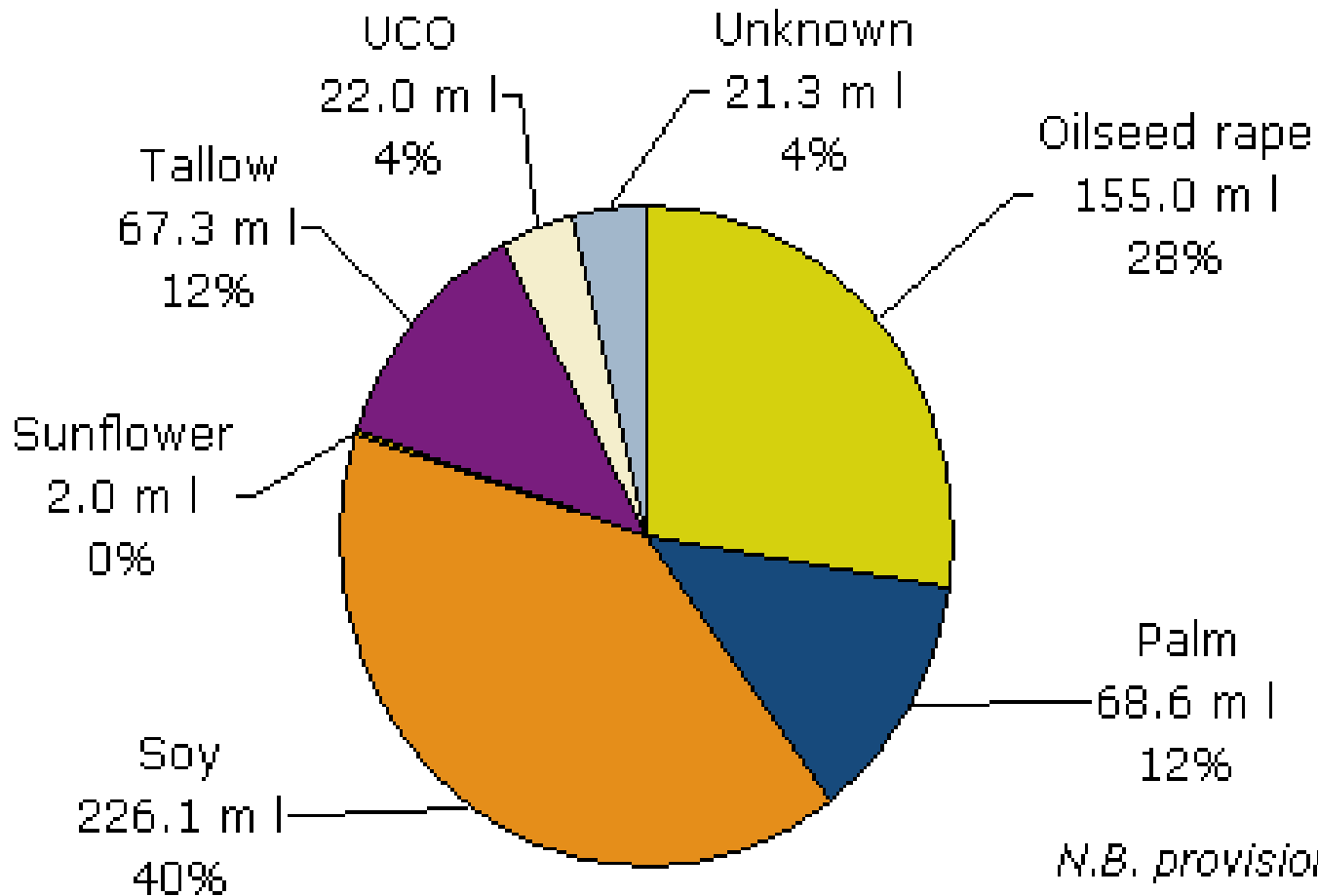
- Standard published early 2008
- Working on revising standard for E10 during 2009-2010
 - introduction of electronic conductivity
 - lowering of inorganic chloride content if feasible
 - lowering of phosphorus content
- Planning a further update to coincide with E85 spec

→ Biodiesel

- Revised standard published 2009
 - phosphorus limit lowered from 10 ppm to 4 ppm
 - Pensky-Martens test method as an alternative for flash point
 - workmanship clause
- Working on next update
 - possible replacement for iodine value is still under discussion
 - Increase of stability requirement is under discussion

Market Analysis - UK Biodiesel

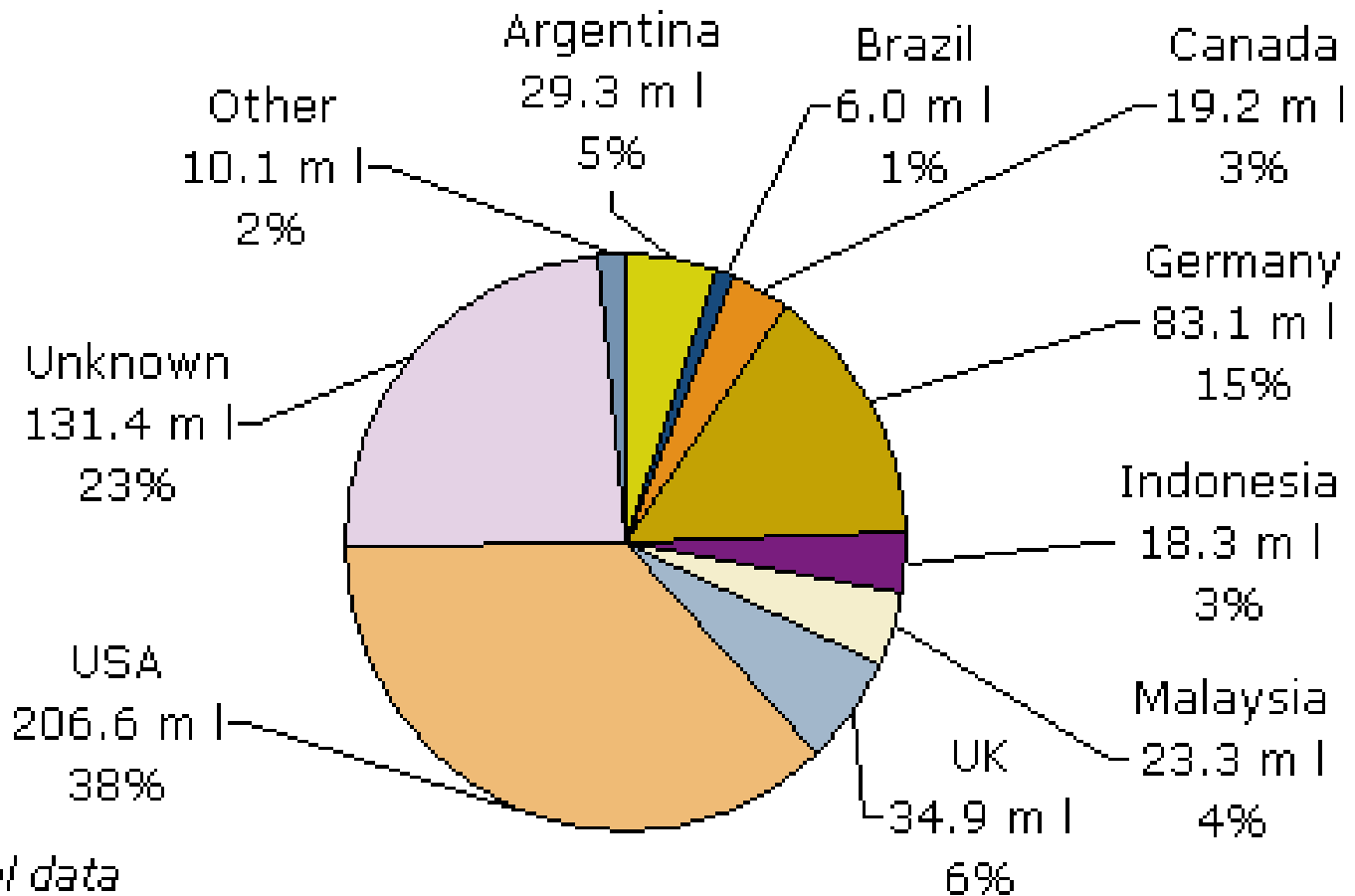
Proportion of biodiesel by feedstock



Market Analysis – UK Biodiesel

Proportion of biodiesel by country

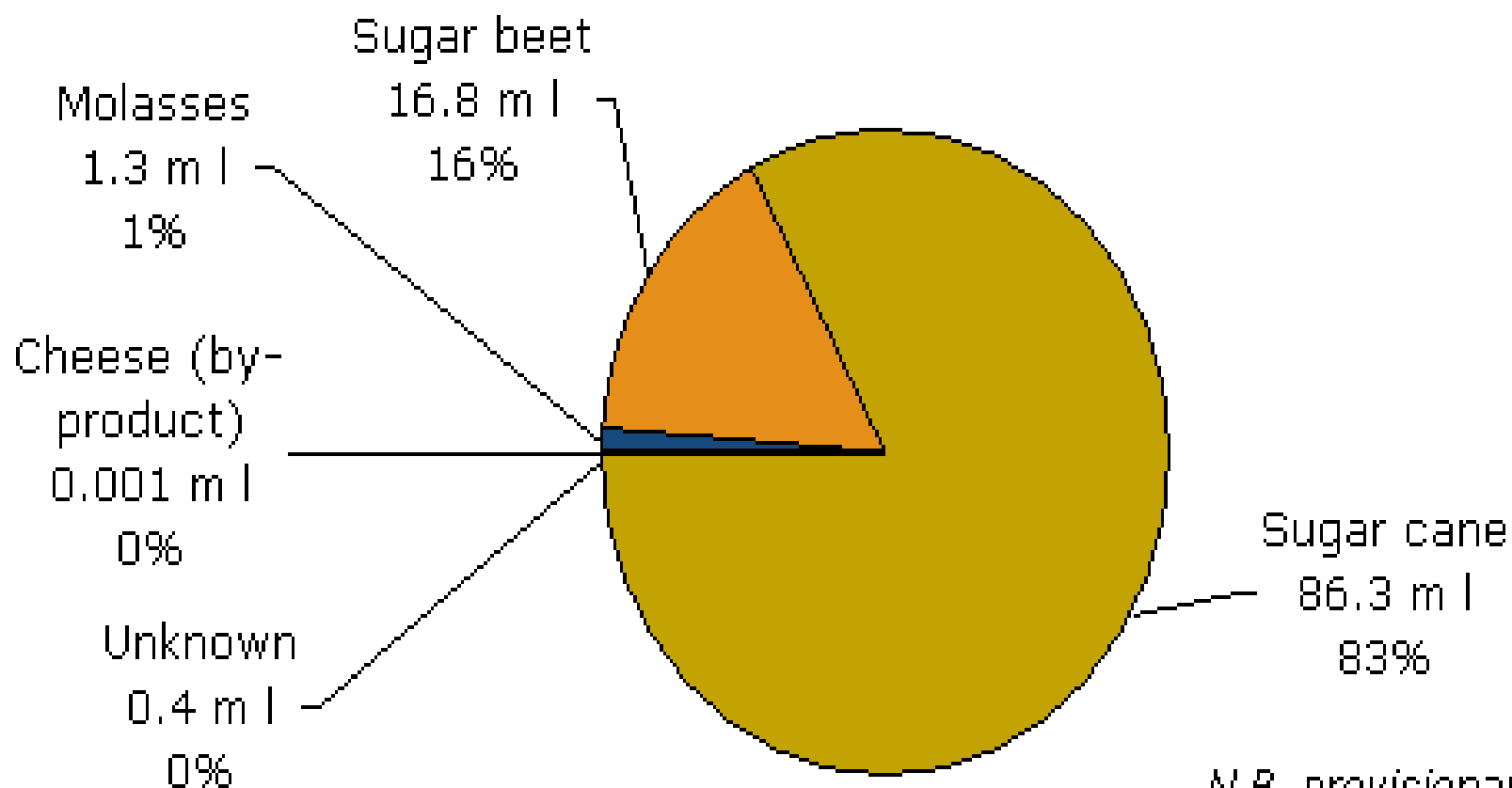
'Other' includes Denmark, Finland, France, Ireland, Netherlands & Ukraine



N.B. provisional data

Market Analysis – UK Bioethanol

Proportion of bioethanol by feedstock

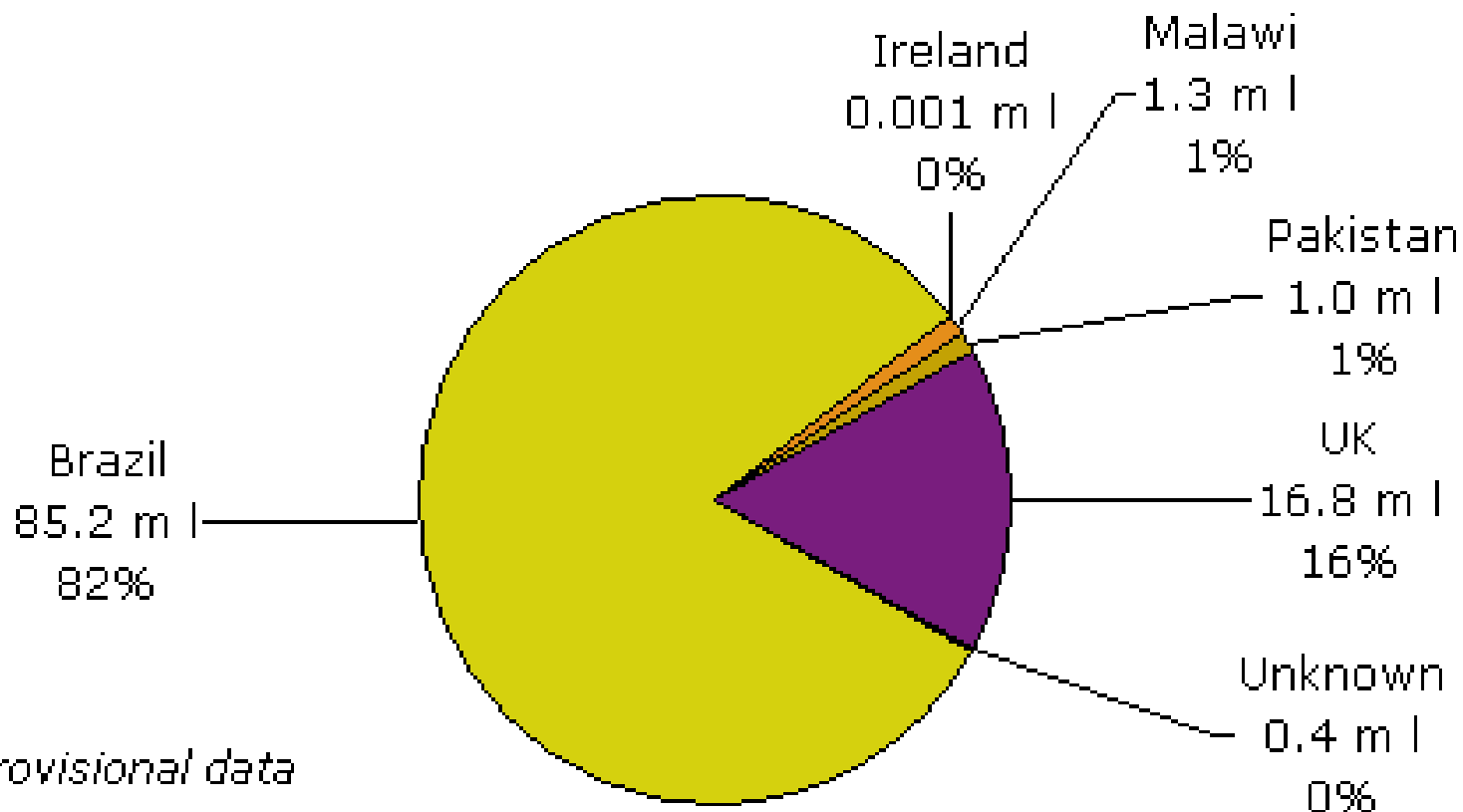


N.B. provisional data

Market Analysis – UK Bioethanol



Proportion of bioethanol by country



N.B. provisional data

Quantity of Biofuel trade

- Brazil exported ethanol to
 - EU 1.2 million te
 - US 560 kte plus 670 kte Central America
- South America exported approx. 150 kte biodiesel
- EU imported 1.5 – 1.9 million te biodiesel,
 - US re-exports FAME by “Splash and dash” (now ended)
- EU Import duty for ethanol
 - Denatured € 10.2/hl
 - Un-denatured € 19.2/hl
- 40kte cargo of ethanol is penalised
 - Un-denatured almost € 1 million
 - Denatured € 500,000

Conclusion

- Although differences exist significant trade is occurring
- No technical specification “Barriers to trade” exist
- However, there are a few minor hurdles
- Largest barrier is fiscal import duties
 - Typical cargo of 40kte amounts to €500k or €1million
 - Biodiesel imports from US, now “counter measures”
- Compared with costs for additional testing or blending
- No further specification harmonisation needed to improve trade flows
- However support work to minimise the hurdles to trade

Recommendation

- Any further work on test method and limits should be through existing standards process - ISO /TC28/ SC7