



## SETTING NATIONAL FUEL QUALITY STANDARDS

### *Proposed Fuel Quality Standard for Fuel Grade Ethanol.*

#### **Introduction**

Renewable Fuels Australia (RFA) appreciates having the opportunity to comment on the Australian Government Position on a **Proposed Fuel quality Standard for Fuel Grade Ethanol.**

Fuel grade ethanol has been produced, distributed and marketed by the Manildra Group in New South Wales since 1992. CSR also produces and supplies fuel ethanol in Queensland. The fuel quality standard for fuel grade ethanol adopted by Manildra, and subsequently by CSR, is the American Society of Testing Materials (ASTM) standard:

- **ASTM D4806** *Standard Specification for Denatured Fuel Ethanol for Blending with Gasolines for use as Automotive Spark-Ignition Engine Fuel.*

ASTM standards are a widely accepted as a worldwide benchmark for maintaining fuel quality standards. They have, since the 1980s, served the rapidly growing fuel ethanol industry in America (expanding to from 13,000 megalitres to 28,000 megalitres by 2012) and, since 1992, the fuel ethanol industry in Australia very well.

As the worlds largest source of voluntary consensus standards, ASTM standards have the advantage of being continuously revised and updated, and thus leading to a ongoing process of adaptation in response to new technical developments, U.S. regulatory changes (e.g. health and environmental), and product application.

The Australian and U.S. transport fuel markets have more similarities than those of Europe, making the ASTM standards more directly relevant to Australia than the European standards that are more heavily weighted towards diesel fuel. The ethanol fuel standard uniformly proposed by ethanol projects submitted to Invest Australia under the Commonwealth Biofuels Capital Grants Scheme was the ASTM standard.

-2-

Confidence in the ASTM standard is reflected by the safe and reliable performance record established by fuel ethanol produced to this standard in both the U.S. and Australia. Despite a determined fabricated scare campaign in Australia, not a single substantiated incident of ethanol related engine damage has been reported in Australia since fuel ethanol was reintroduced into the Australian transport fuel market in 1992.

Intensive vehicle field trials of a 10% ethanol blend in petrol (E10) conducted in the United States and Australia (ERDC Project No. 2511 – 1997/98) have clearly demonstrated no drivability or operability issues associated with E10 use in the general American and Australian vehicle fleet.

Both existing producers such as Manildra and CSR, and proposed ethanol project proponents are as one in supporting the successful historic relationship between Australia and the ASTM standard. The existing ASTM specifications have not been demonstrated to be deficient, and have the added advantage of frequent adaptation or amendment in response to market, technology, and regulatory demand.

## **Comment on Proposed Changes**

### Ethanol Content

The proposed specification is substantially tighter than the current ASTM, and without adequate explanation or test data to support reasons for this proposed change.

It is likely that some future producers may experience difficulty in meeting this specification. While agreeing that ethanol content should be stated as excluding water, both Manildra and CSR have expressed reservations about the proposed 99.0% standard:

- CSR has proposed that if the proposed ASTM method is chosen, the specification should be a 97% volume minimum.
- Manildra has proposed that ethanol content should be stated as excluding water, and noted that it is likely that some future producers will have trouble meeting this specification as fusel oil is invariably produced as a by-product of fermentation and its level is feedstock dependent. It has pointed also to the fact that if fuel ethanol contains 1% of moisture and 5% of denaturant, which are both allowed, it can contain absolutely nothing else. This is seen as unrealistic.

Recommendation:

**It is proposed that the minimum volume be maintained at 97%.**

### Methanol Content

The methanol recommended level, without the benefit of scientific reasoning, is also much tighter than that required by ASTM.

-3-

- Manildra has noted that some producers using different feedstocks may have problems meeting this standard. The rationale for setting the recommended level, as stated in the discussion paper, is based on the corrosive properties of methanol. Fuel grade ethanol containing 0.2% methanol will be out of specification. The blended fuel coming into contact with the engine will contain one-ninth this level - that is 0.02%.

Professor Barry Batts (Adjunct Professor, Macquarie University) claims there is no evidence in the literature which shows that methanol at this level is corrosive.

- CSR has noted that the proposed standard is based on Australian production capability as opposed to scientific reasoning and test data based on optimum vehicle and environmental performance.

Recommendation:

**In the absence of evidence that the ASTM D 4806 standard of 0.5% by volume is detrimental and causes corrosion or engine wear, the established U.S. quality standard should be maintained.**

### Phosphorus

The IFQC Report states that phosphorus is more relevant to synthetic ethanol production than production from fermentation. Change based on “the expectation” of possible phosphorus limits being imposed by the EU on fuel grade ethanol meeting EU standards does not represent a rigorous scientific approach for Australia to adopt on this issue.

- CSR believes that the adoption of this parameter would impose a significant analytical cost on the producer for a compound that by the IFQC’s estimation is more relevant to include in finished fuel standards.
- Manildra has noted that the limit on phosphorus in petrol is 1.3 mg/L, and believes there is no reason why the level in the blending ethanol should be less than this amount.

Recommendation:

**The introduction of limits based on “the expectation” of possible changes by the EU on established U.S. standards that have the capacity to embrace changes that are justified, and do not impose significant and unnecessary analytical cost, should not be entertained at this time. Joint monitoring of this issue in the future by industry and government might be considered as an option.**

### Water Content

Recommendation:

**Water content of 1.0% vol max is accepted.**

-4-

### Denaturants and Corrosion Inhibitors

Denaturants and Corrosion inhibitors would not normally be considered to be components in a national fuel quality standard, and should be treated accordingly.

### Table 1

It is suggested that the heading of Table 1 be changed to **Proposed Australian Fuel Grade Ethanol Standard**

### Other Issues

Biological vs Synthetic ethanol:

**As a general principle there should be a clear and apparent distinction between biomass based renewable ethanol fuel and synthetic ethanol.**

ASTM D4806-04a:

**Current and proposed specifications in this submission are compatible with the latest ASTM D4806-04a ethanol specifications.**

FVI:

**FVI is a parameter, as opposed to a science based fuel quality standard specification.**

Corrosion Inhibitor:

**Like our American counterpart, Renewable Fuels Australia will continue to recommend the addition of a corrosion inhibitor to ethanol blended with petrol, unless specified otherwise when sold directly to the major oil companies for blending with petrol as part of the refinery process.**