



CAMS 5th Category Historic

Fuel for the Future

CONFEDERATION OF AUSTRALIAN MOTOR SPORT

MEMBER OF



Fuel for the Future

The Australian Government Department of the Environment announced formally in June 2017 that a ban on the use of lead in fuel for racing purposes would be applied as of 1 July 2019.

The areas of legislation affected are the:

Fuel Quality Standards ACT; and

Fuel Quality Standards Regulations

As of 1 January 2019 CAMS published the regulations that would apply this ban on the use of lead in racing fuels with changes made to:

CAMS Manual Schedule G – Fuel

and

SPECIFICATIONS OF AUTOMOBILES

5th Category – Historic Cars

Vehicle Eligibility – General Requirements

CAMS Manual Schedule G – Fuel

<https://www.cams.com.au/regulations/manual>

- Applies the ban on the use of lead in fuel.
- Permits through specific 'Group' regulations the use of alternate unleaded fuels and alternate additives (such as 5th Category groups).

SPECIFICATIONS OF AUTOMOBILES

5th Category – Historic Cars

Vehicle Eligibility – General Requirements

[https://www.cams.com.au/docs/default-source/manual/historic/hi03-gen-requirements-2019-1-\(formerly-3-1\).pdf?sfvrsn=c24e0de_9](https://www.cams.com.au/docs/default-source/manual/historic/hi03-gen-requirements-2019-1-(formerly-3-1).pdf?sfvrsn=c24e0de_9)

- Applies the ban on the use of lead in fuel.
- Details an alternate Unleaded Racing Fuel as per:
Art. 1.9 Fuel
(a) (iii) (B) *An Unleaded Racing Fuel with a maximum Ethanol content of 30% which is commercially available in Australia and distributed by a Fuel Supplier and which complies with the Fuel Standards Determinations made under the Australian Fuel Quality Standards Act.*
- Details an alternate Fuel Additive as per:
Art. 1.9 Fuel
(a) (v) *A Fuel Additive is any additive which is commercially available in Australia and is distributed for the purpose of being added to a fuel to provide additional lubrication to the fuel or to effect the specification of the fuel (such as the Research Octane Number [RON]).*

The following table is included in these regulations to define the fuel types and additives permitted for each relevant historic group (* to indicate what is permitted):

| GROUP | LEADED RACING FUEL ¹ | UNLEADED RACING FUEL | ETHANOL BLENDED FUEL | PUMP FUEL | ADDITIVES ² | As per Log Book or COD |
|-------|---------------------------------|----------------------|----------------------|-----------|------------------------|------------------------|
| A | * | * | | * | | |
| C | * | * | | * | | |
| N | * | * | * | * | * | |
| S | * | * | * | * | * | |
| T | * | * | | * | * | * |
| U | * | * | | * | * | * |
| F | * | * | | * | * | |
| V | * | * | | * | * | |
| F5000 | * | * | | * | * | |

| GROUP | LEADED RACING FUEL ¹ | UNLEADED RACING FUEL | ETHANOL BLENDED FUEL | PUMP FUEL | ADDITIVES ² | As per Log Book or COD |
|---------|---------------------------------|----------------------|----------------------|-----------|------------------------|------------------------|
| JA / JB | * | * | | * | * | * |
| KA / KB | * | * | | * | * | * |
| LB / LC | * | * | | * | * | * |
| M | * | * | | * | * | * |
| O | * | * | | * | * | * |
| P | * | * | | * | * | * |
| Q | * | * | | * | * | * |
| R | * | * | | * | * | * |

Changes for 2020

SPECIFICATIONS OF AUTOMOBILES

5th Category – Historic Cars

Vehicle Eligibility – Sports and Racing: F, J, K, L, M, O, P, Q, R, T, V and F5000

https://www.cams.com.au/docs/default-source/manual/historic/hi04-sportsracing.pdf?sfvrsn=c728d91f_11

Specific requirements for Group F – Formula Ford Racing Cars

Group F - Formula Ford Racing Cars fuel regulations will be aligned as the same as the contemporary Formula Ford 1600 regulations from the **01/01/2020**:

Specific requirements additional to the General Requirements:

(g) Fuel: *Only Pump Fuel as per Schedule G*

- *Only those Lead replacement Additives as listed and permitted in Schedule G*
- *Any fuel containing ethanol (including E10, E85) is prohibited*

This was agreed to by the CAMS AHMSC at their meeting held on 15 June 2019.

Changes for 2020

SPECIFICATIONS OF AUTOMOBILES

5th Category – Historic Cars Group A, C, N & U – Touring Cars

[https://www.cams.com.au/docs/default-source/manual/historic/hi06-touring-cars-2019-1-\(formerly-3-4\).pdf?sfvrsn=f910319e_9](https://www.cams.com.au/docs/default-source/manual/historic/hi06-touring-cars-2019-1-(formerly-3-4).pdf?sfvrsn=f910319e_9)

Specific requirements for Group A

Proposed Fuel Regulations for 2020

Specific requirements additional to the General Requirements (Group A):

(a) Engine

(v) Fuel: Only Pump Fuel or Unleaded Racing Fuel to a maximum rating of 104RON/90MON & 3.7% oxygen volume as defined by Schedule G of the CAMS Manual of Motor Sport are permitted

Changes for 2020

SPECIFICATIONS OF AUTOMOBILES

5th Category – Historic Cars Group A, C, N & U – Touring Cars

[https://www.cams.com.au/docs/default-source/manual/historic/hi06-touring-cars-2019-1-\(formerly-3-4\).pdf?sfvrsn=f910319e_9](https://www.cams.com.au/docs/default-source/manual/historic/hi06-touring-cars-2019-1-(formerly-3-4).pdf?sfvrsn=f910319e_9)

Specific requirements for Group C

Proposed Fuel Regulations for 2020

Specific requirements additional to the General Requirements (Group C):

(a) Engine

(iv) Fuel: Only Pump Fuel or Unleaded Racing Fuel to a maximum rating of 104RON/90MON & 3.7% oxygen volume as defined by Schedule G of the CAMS Manual of Motor Sport are permitted

Changes for 2020

The Group A and C fuel decision was considered by the CAMS AHMSC at their meeting of the 15 June 2019 – the decision was accepted on the condition that the decision is also ratified by the CAMS Fuel Regulations Committee, which is a work in progress.

The decision was based on the following information related to Group A considering some of the fuels currently available and fuel specifications of the period:



HTC Fuel Review - March 2019

| | FIA Article 252 App.J | CAMS 1991* | ULP 98 | VP RX102 | ELF LMS | Sunoco FR | PP 100+ | PP 102+ | ELF Race 102 | VP MS109 | RF100 |
|-----------------------|-----------------------|------------|--------|---------------------|---------|-----------|---------|---------|--------------|----------|------------------|
| RON | 95-102 | 101.7 | 99 | 102 | 101.7 | 102 | 100 + | 102+ | 102+ | 107 | 104 |
| MON | 85-90 | 89.9 | 85 | 89 | 89.7 | 90 | 89 + | 90+ | 88+ | 99 | 100 |
| Gravity | .72-.785 | 0.831 | 0.775 | 0.756 | 0.765 | 0.76 | 0.769 | 0.78 | 0.78 | 0.725 | 0.73 |
| Oxygen | 3.7% MAX | ??? | 2.70% | 3.45% | 2.60% | 3.70% | 3.66% | 3.48% | 3.70% | 9.32% | 0 |
| RVP | 9 | 4.35 | ??? | 7.65 | 5.5 | 9 | 7.8 | 7.2 | ??? | 4.06 | 4.5 |
| Group C & A compliant | | N/A | YES | YES - FIA compliant | | | CLOSE | CLOSE | CLOSE | NO | NLA as at 1/7/19 |
| 200L | | | \$500 | | \$1,800 | | \$640 | \$660 | \$1,000 | | \$900 |
| 1L | | | \$2.50 | | \$8.00 | | \$3.20 | \$3.30 | \$5.00 | | \$4.50 |

* CAMS 1991 fuel = ULP 98 + approx 20% toluene - this raises the RON/MON to approx 102 RON/90 MON from standard 98 which is 99 RON/85 MON

Toluene is a derivative of benzene (known carcinogen) and current standards require volume to be less than 1%. CAMS '91 fuel had 4% benzene content

All FIA compliant fuels and PP100+/102+ & ELF Race 102 are suitable substitute fuels for CAMS 1991 fuel specification

TOOHEYS 1000

1991 TOOHEYS 1000

"CAMS UNLEADED" FUEL SPECIFICATIONS

| | |
|----------------------------|------------|
| Density @ 15 C, Kg/L | 0.8031 |
| Appearance | Cl & Br |
| Benzine Content, % v | 4.1 |
| Colour | Yellow |
| Copper Strip (3 h/50 C) | No. 1 |
| Doctor Test | Negative |
| Existent Gum, mg/100ml | *<1 |
| Flexible volatility Index | 51.0 |
| Odour | Marketable |
| Octane No - Research (RON) | 101.7 |
| Octane No - Motor (MON) | 89.9 |
| Octane No - (RON + MON)/2 | 95.8 |
| RVP @ 37.8 C kPa | 43.5 |
| Sulphur, % m | *<0.005 |
| Distillation, IBP C | 40 |
| 10% v evap. @ C | 68 |
| 20% v evap. @ C | 84 |
| 50% v evap. @ C | 122 |
| 80% v evap. @ C | 152 |
| FPB, C | 183 |
| Loss % v | 3 |
| Residue % v | 1 |
| 3 v evap. @ C | |
| 3 v evap. @ C | |
| 3 v evap. @ C | |
| V/L Ratio (T36) | |

NOTE: (i) Test Methods in accordance with Product Specification Series unless otherwise stated.
(ii) *Indirectly obtained from known data.



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Further Information:

AUS GOV – Dept. of the Environment – Specialist Racing Fuels

<https://www.environment.gov.au/protection/fuel-quality/applications-vary-act/specialist-racing-fuels>

which includes a link which lists all current approvals that have been granted under section 13 of the Fuel Quality Standards Act 2000.

List link as at 25 June 2019:

<https://www.environment.gov.au/system/files/resources/7b3b7f74-5061-4de8-a01a-cca7d824d704/files/fuel-quality-approval-granted.pdf>

WARNING:

It is the responsibility of the competitor (or vehicle owner) to ensure that any fuel (or fuel type) used is suitable for the fuel system/engine of that vehicle. Modifications may be required when changing the fuel or fuel type used.

- Any change of fuel (or fuel type) used may affect fuel system components (including the fuel tank, pumps, lines, hoses etc.).
- Any change to fuel (or fuel type) used may affect an engine in both performance and reliability.

Any modification undertaken must comply with the regulations for that vehicle as per the relevant CAMS 5th Category Historic Group.

A competitor (or vehicle owner) may seek approval for a modification that is not permitted within the relevant regulations via the following processes:

- For a vehicle the subject of a COD/FIA HTP by application to CAMS;
- For a vehicle not the subject of a COD (i.e. Group N and S) by an application to CAMS in conjunction with an appointed CAMS Eligibility Officer.

This presentation was delivered at a meeting of the Victorian Historic Racing Register (VHRR) on the 25 June 2019 by CAMS representative:

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