



FUEL, DIESEL, INITIAL FILL, BRAZIL

WSS-M4C121-A

1. SCOPE

The material defined by this specification is a well-refined middle distillate petroleum product containing normal commercial additives.

2. APPLICATION

This specification was released originally for material used as initial fill fuel for diesel engines in passenger cars and light and heavy trucks.

This material is not specifically intended for use in certification testing. It may be used for engine hot test, mileage accumulation or general fueling.

3. REQUIREMENTS

This material must be produced using current refinery practices for commercial diesel fuels and in addition to the requirements of this specification, must also meet all pertinent local requirements.

3.0 STANDARD REQUIREMENTS FOR PRODUCTION MATERIALS

Material suppliers and part producers must conform to the Company's Standard Requirements For Production Materials (WSS-M99P1111-A).

3.2 CETANE RATING

3.2.1 Cetane Number, min 42
(ISO 5165/ASTM D 613-preferred)

3.2.2 Cetane Index, min 45
(ASTM D 4737)

Note: In case of doubt cetane number prevails.

3.3 TOTAL SULFUR, max 0.05% mass
(ISO 8754/ISO 14596/ASTM D 4294/D 1552/D 2622)

Date	Action	Revisions
2007 12 18	Revised	Revised: 3.2.2; 3.3; 3.5; 3.6; 3.7.1; 3.8; 3.9; 3.10; 3.13; 3.15; 3.17; 3.18. Inserted: 3.4.1; 3.4.2; 3.4.3; 3.4.4; 3.4.5; 3.7.2; 3.19; 3.20; 3.21 Deleted: Water and Sediments from para 3.4 L. Benvenuti
1999 04 29	Revised	Rev 3.2.1, 3.2.2, 3.3, 3.5, 3.14, 3.16, 5.4 M. Correia
1998 10 27	Activated	M. Correia



**3.4 COMPOSITION, max**

3.4.1	Water content (ISO 12937/ASTM D 1744)	200 mg/kg
3.4.2	Hydrocarbon Types (ISO 3837/ASTM D 1319)	Report
3.4.3	Total contamination (EN 12662)	24 mg/kg
3.4.4	Polycyclic Aromatic Hydrocarbons (IP 391:1995/EN12916)	11% mass
3.4.5	FAME/FAEE (Biodiesel)	Not allowed

Only for Tatuí Proving Ground (TPG) it is accepted to receive diesel with maximum Biodiesel content according to mandatory limit of valid Brazilian legislation for commercial diesel.

3.5 DISTILLATION RANGE
(ISO 3405/ASTM D 86)

		Temperature, °C
Initial boiling point		Report
10% vol recovery at,		Report
50% vol recovery at,		245 - 310
85% vol recovery at, max		360
Final boiling point		Report

3.6 DENSITY
(ISO 3675/ASTM D 1298/D 4052, at 20 °C)820 - 865 kg/m³**3.7 CORROSION**

3.7.1	Copper Tarnish, max (ISO 2160/ASTM D 130, 3 h at 100 +/- 1 °C)	1 b
3.7.2	Rust Prevention, max (ISO DP 7120/ASTM D 665, Procedure B, 30 minutes)	Moderate rusting

3.8 KINEMATIC VISCOSITY
(ISO 3104/ASTM D 445, 40 °C)

2.5 – 5.0 cSt

3.9 CARBON RESIDUE, max
(ISO 6615/ASTM D 189/ASTM D 524, 10%
distillation residue)

0.25%

3.10 ASH CONTENT, max
(ISO 6245/ASTM/D 482)

0.01% mass