

INTERNATIONAL TRUCK and ENGINE CORPORATION		
CEMS (CORPORATE ENGINEERING MATERIAL SPECIFICATION)		NUMBER: CEMS B-28
TITLE: Regular Leaded And Unleaded Gasoline For Factory Fill		CURRENT ISSUE DATE: August 2006
WRITTEN/REVIEWED BY: Materials Engineering	APPROVED BY: Materials Engineering	SUPERSEDES ISSUE OF: December 2001
PRINTED COPIES OF THIS DOCUMENT MUST BE VERIFIED FOR CURRENT REVISION		
<i>This specification may involve hazardous materials, equipment, and procedures. This specification does not purport to address all of the safety issues associated with its use. The user is responsible to consult appropriate safety and health practices and to determine the applicability of regulatory limits prior to use.</i>		
Change Notice: Added Sections 2.1 and 12.0. Revised Sections 4.0 and 9.1.		

1.0 SCOPE

This specification covers gasoline intended for factory fill in carburetted engines which may be stored for an extended period of time.

2.0 INTRODUCTION

Fuel grades are used in factory fill applications to permit the vehicles to be driven at the end of the assembly line.

2.1 Restricted Chemical Substances

Effective January 1, 2007, all product supplied to the requirements of this specification must comply with the requirements of the CEMS B-50 specification.

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4.0 REFERENCE DOCUMENTS

Unless otherwise specified, the latest issue of all referenced standards shall apply. The following standards, specifications and regulations are referenced in this specification.

Quality System Standard ISO 9001 or TS-16949	ASTM D 86	ASTM D 1266
INTERNATIONAL IQR Quality Standard	ASTM D 130	ASTM D 2273
INTERNATIONAL Manufacturing Standard D-13	ASTM D 323	ASTM D 2533
INTERNATIONAL CEMS BT-17	ASTM D 381	ASTM D 2622
INTERNATIONAL CEMS B-50	ASTM D 439	ASTM D 2700
CFR Title 29, Part 1910	ASTM D 526	ASTM D 3229
		ASTM D 3231

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5.0 CLASSIFICATION OR DESIGNATION

Fuel grades are classified on the basis of octane rating and additive (lead) content.

6.0 PROPERTY REQUIREMENTS

The material purchased to this specification will conform to the following requirements:

Property			Specification Limit						Test Method (ASTM unless Otherwise specified)
			Grade 28 L (Leaded)			Grade 28 U (Unleaded)			
			winter	spring and fall	summer	winter	spring and fall	summer	
Vapor Pressure, Max*		lbf (psi)	14.5	11.5	9.5	14.5	11.5	9.5	D323
		kPa	100.0	79.2	65.5	100.0	79.2	65.5	
Vapor Liquid Ratio V/L, max			20	20	20	20	20	20	D2533**
at test temperature		°F	105	124	140	105	124	140	
		°C	41	51	60	41	51	60	
Distillation* (% evaporated)	10%, point, max	°F	120	135	150	120	135	150	D 86
		°C	49	57	66	49	57	66	
	50% point	°F	175-240	180-250	190-260	175-240	180-250	190-260	
		°C	79-116	82-121	88-127	79-116	82-121	88-127	
	90% point, max	°F	370	380	380	370	380	380	
		°C	188	193	193	188	193	193	
	end point, max	°F	430			430			
		°C	221			221			
residue, % max			2			2			
Octane Number, Min		motor method	84			83			D 2700
		research method	91			91			D 2699
Gum, Mg/100 ml, max		unwashed	10			10			D 381
		existent	5			5			
Sulfur, % max			0.10			0.10			D 1266 or D2622
Corrosion, copper strip, 3 hr at 122°F (50°C), max			1			1			D 130
Lead	g/U.S. gal		1.4 min			--			D 526
	g/ liter		0.37 min			--			
	g/U.S. gal		--			0.05 max			D 3229
	mg/ liter		--			13.0 max			
Phosphorus, max		g/U.S. gal	0.01			0.005			D 3231
		mg/ liter	2.6			1.3			
Trace Sediments, % max			0.005			0.005			D 2273
Oxidation Stability, minutes, min (induction period)			300			300			CEMS BT-17

* During transition periods between seasons, deviation of distillation and vapor pressure from the requirements is permissible providing the values do not exceed the maximum for the seasons involved.

** For quality assurance samples, the temperature at the V/L ratio of 20:1 may be calculated by linear equation method per ASTM D 439, A2.3, the minimum acceptable will be the test temperatures shown above.

7.0 QUALITY

Gasolines purchased to this specification will be suitable for use in carbureted engines which may be stored for an extended period of time. They may contain detergents and inhibitors that prevent precipitation of soluble gums for at least six months.

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