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APPENDIX: A Global Overview and Outlook of Gasoline Quality, Vehicle Emissions and Fuel Efficiency

Global Fuel Specifications (GFS)
Reports & Analysis
Apr. 20, 2023



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Top Gasoline Markets

Many of the Top 10 have set gasoline specs, vehicle emission and/or fuel economy standards

Rank No.	Country	2021 Demand* (thousand b/d)	Rank No.	Country	2021 Demand* (thousand b/d)
1	U.S.	7,536	11	Saudi Arabia	480
2	China	3,043	12	Nigeria	384
3	Russia	831	13	Germany	329
4	Japan	706	14	Malaysia	302
5	India	696	15	Australia	271
6	Canada	668	16	South Korea	233
7	Indonesia	594	17	U.K.	232
8	Mexico	574	18	Venezuela	214
9	Iran	519	19	U.A.E.	210
10	Brazil	513	20	South Africa	205

Note: *Volumes include ethanol and other blending components such as ethers.

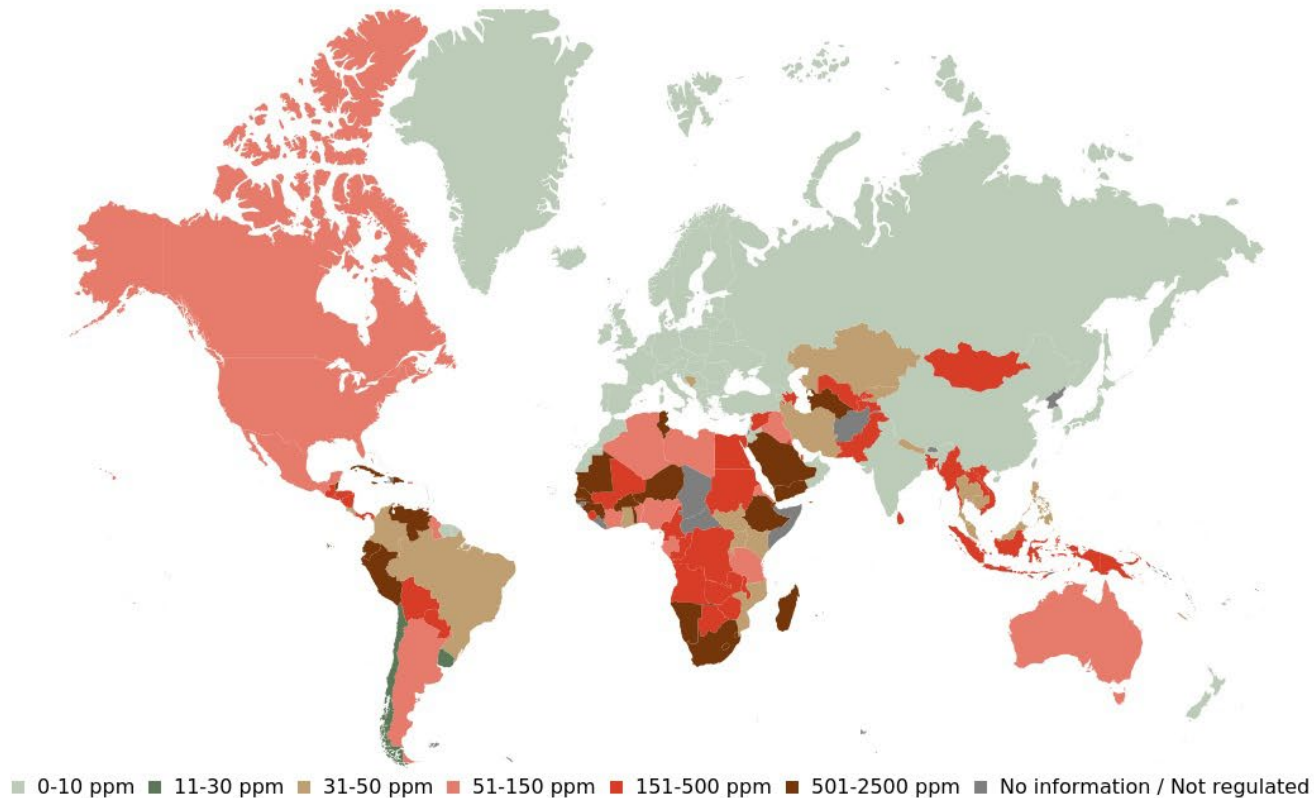
Source: *Stratas Advisors, 2023*



Sulfur

Maximum Sulfur Limits in Gasoline, 2023

Saudi Arabia and GCC expected to start moving towards 10 ppm from this year



Countries may apply lower limits for different grades, regions/cities, or based on average content. Detailed information on limits and regulations can be found at www.stratasadvisors.com.

Source: Stratas Advisors, April 2023

Gasoline Sulfur Outlook (1/3)

Harmonization of fuel specs at the sub-regional level is key to sulfur reduction

Country	2023	2024	2025	2026	2027	Likelihood of Implementation	Reason for Delay, If Any
AFRICA							
African Organization for Standardization (ARSO)¹				10 ppm ²		Unlikely	-
East African Community (EAC)³		50 → 10 ppm				Likely for imports	-
Economic Community of West African States (ECOWAS)⁴			50 ppm			Unlikely except for Cote d'Ivoire and Niger	Mali has a reliance on Senegal's refinery which is yet to be upgraded. In addition, there is a lack of control of imported fuel in Senegal and Sierra Leone. On the other hand, Togo is waiting for Nigeria to move to lower sulfur fuels before making a similar switch.
South Africa					1,500/500 → 10 ppm	Unlikely	Refinery upgrades
Southern African Development Community (SADC)⁵			50 ppm			Unlikely	50 ppm is already available in many member countries. Imports from South Africa as well as Tanzania and Mozambique will help the whole region switch easily to 50 ppm. However, it is unlikely the local refineries will be upgraded to produce 50 ppm by 2025 and 10 ppm by 2025-2030.

Notes: Dark red – implemented. Red – confirmed. Brown – proposed.

1) ARSO currently has membership in 40 African countries.

2) Applies to unleaded gasoline with maximum oxygen content of 2.7 wt%. For unleaded gasoline with maximum oxygen content of 3.7 wt%: Max 10 ppm from Jan. 2, 2030.

3) EAC member countries include Burundi, Kenya, Rwanda, South Sudan, Tanzania and Uganda.

4) ECOWAS member countries include Benin, Burkina Faso, Cape Verde, Cote d'Ivoire, Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo.

5) SADC member countries include Angola, Botswana, Comoros, Democratic Republic of Congo, Eswatini, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Tanzania, Zambia and Zimbabwe.

Source: *Stratas Advisors, April 2023*

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Gasoline Sulfur Outlook (2/3)

Reduction to 50 ppm and below for 17 countries and 3 sub-regions

Country	2023	2024	2025	2026	2027	Likelihood of Implementation	Reason for Delay, If Any
ASIA PACIFIC							
Australia		150/50 → 10 ppm				Likely	-
Cambodia		50 → 10 ppm				Unlikely	Weak local enforcement measures by the government
Indonesia	500 → 400 ppm ⁶	300 → 50 ppm ⁷	400 → 350 ppm ⁶		350 → 300 ppm ⁶	400 ppm implemented for RON 91 since January 2023. Unlikely for 50 ppm.	Fuel subsidies impose difficulties in advancing fuel quality
Malaysia			50 → 10 ppm			Likely	-
Thailand		50 → 10 ppm ⁸				Likely ⁹	-
Vietnam	500/150/50 → 500/150/50/10 ppm					Under implementation since February 2023	-
EUROPE							
Bosnia & Herzegovina		150 → 10 ppm				Likely	-
LATIN AMERICA							
Argentina		150/10 → 50/10 ppm				Likely	-
Peru	1,000/50 → 50 ppm ¹⁰	10 ppm				Under implementation for 50 ppm; Unlikely for 10 ppm	Fuel storage infrastructure issues in Loreto and Ucayali; May have to rely on imports

Notes: Dark red – implemented. Red – confirmed. Brown – proposed.

6) Applies to RON 91 gasoline. Final reduction to 50 ppm max from Jan. 1, 2028.

7) Applies to RON 95 gasoline.

8) 10 ppm sulfur gasohol is available at select service stations.

9) Plans to implement 10 ppm sulfur max limit from 2024 was announced in December 2019, however delays in refinery upgrading due to the pandemic hindered implementation plans. With Euro 5/V set for 2024 to curb deteriorating air quality, fuel quality improvements is likely to be implemented at the same time. However, it remains unconfirmed.

10) For gasoline and gasohols with RON 95 or higher (95/97/98), except in the departments of Loreto and Ucayali. Lower octane grades with max sulfur limit of 1,000 ppm will continue to exist nationwide.

Source: *Stratas Advisors, April 2023*

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Gasoline Sulfur Outlook (3/3)

Reduction to 50 ppm and below for 17 countries and 3 sub-regions

Country	2023	2024	2025	2026	2027	Likelihood of Implementation	Reason for Delay, If Any
MIDDLE EAST							
Jordan	500/50 ¹¹ → 50 or 10 ppm					Unlikely	Delay in refinery upgrades
Kuwait	500 → 10 ppm					Likely	Directly following Saudi Arabia's switch to 10 ppm
Saudi Arabia	1,000 → 10 ppm ¹²					Unlikely	No official communication from Saudi Aramco on the implementation
RUSSIA & CIS							
Azerbaijan	500 → 10 ppm					Likely	Depending on refinery upgrades
Kyrgyzstan	500/150 → 50/10 ppm					Likely	Depending on imports
Tajikistan	500 → 10 ppm					Unlikely	Depending on imports
Uzbekistan	150 → 50 ppm ¹³					Implemented since January 2023	-

Notes: Dark red – implemented. Red – confirmed. Brown – proposed.

11) Refinery limits

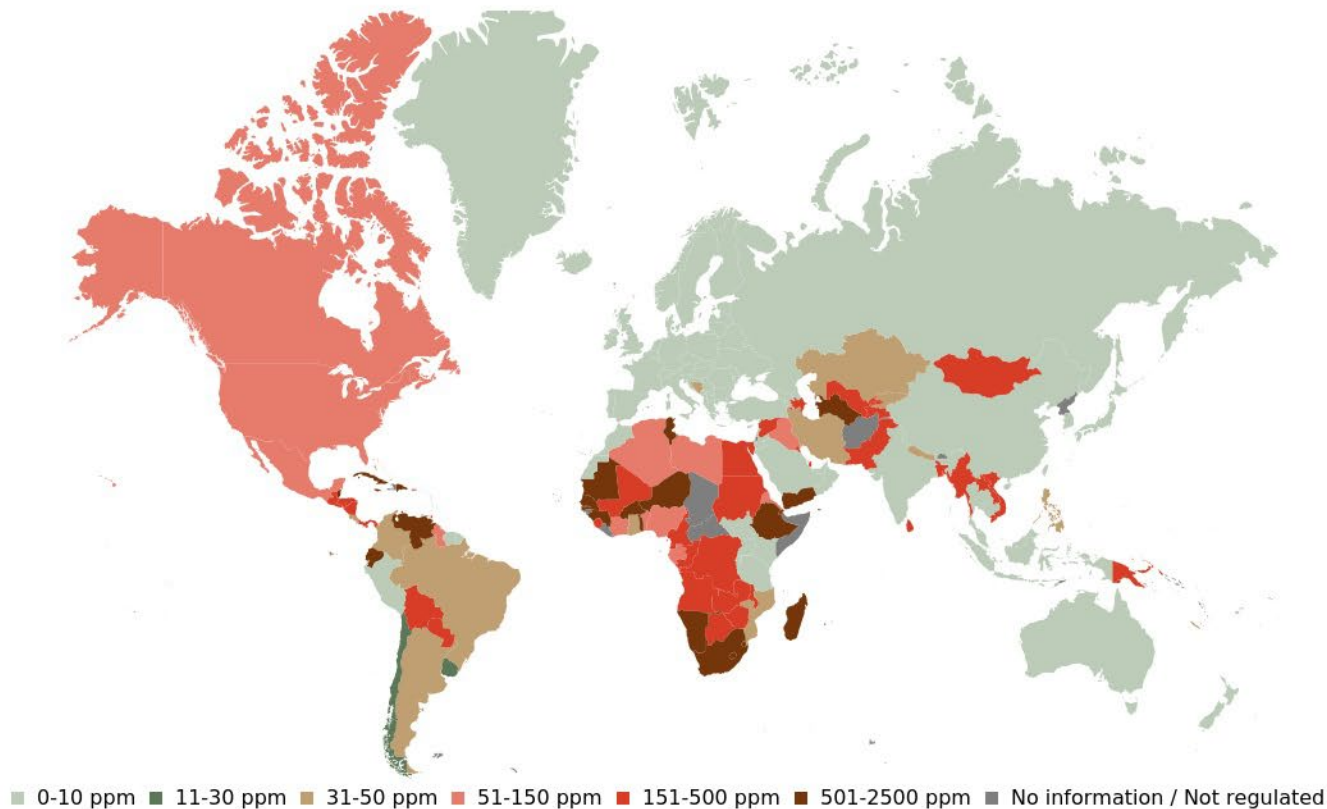
12) Other GCC member countries are likely to follow Saudi Arabia and adopt 10 ppm sulfur fuels in 2023, if not already in place.

13) Imports only.

Source: Stratras Advisors, April 2023

Maximum Sulfur Limits in Gasoline, 2025

Australia, Cambodia, Malaysia, Peru and Thailand to require 10 ppm by this time

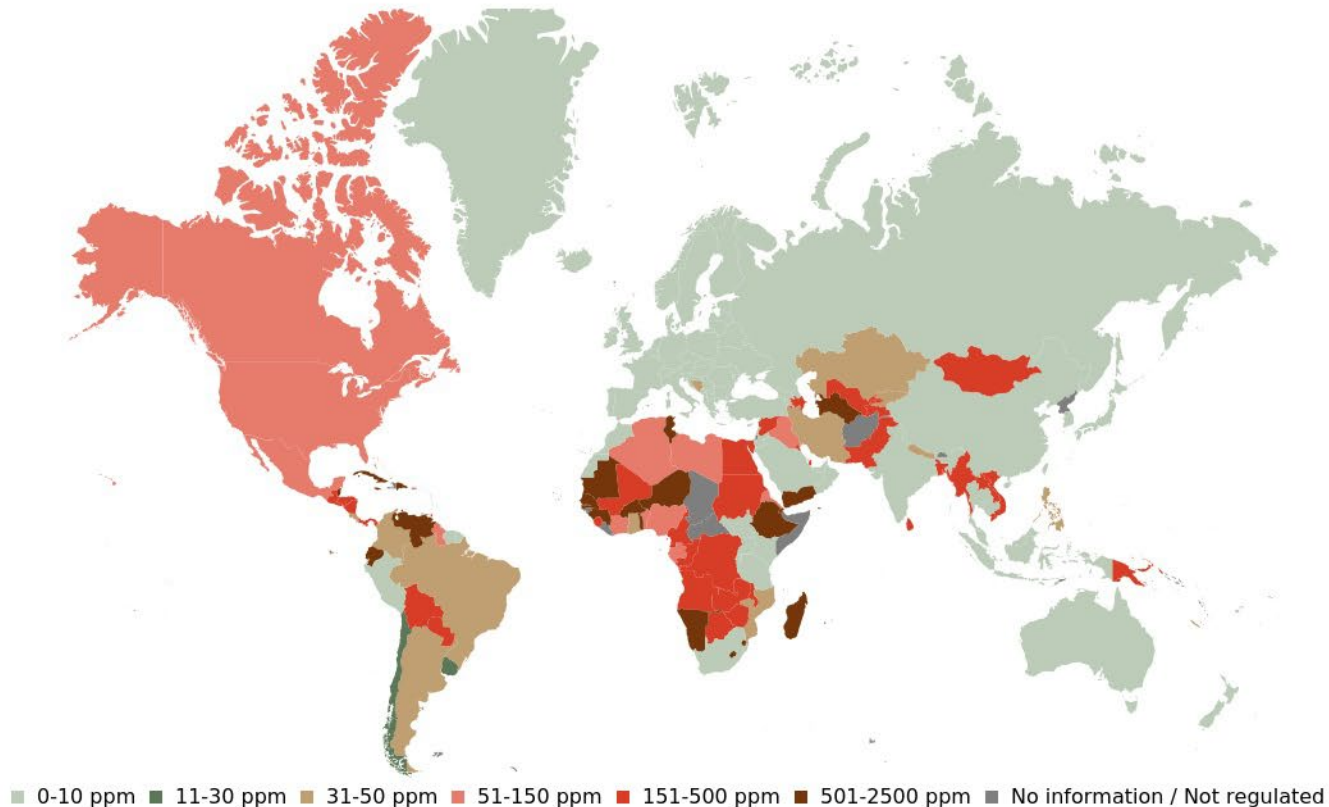


Countries may apply lower limits for different grades, regions/cities, or based on average content. Detailed information on limits and regulations can be found at www.stratasadvisors.com.

Source: Stratas Advisors, April 2023

Maximum Sulfur Limits in Gasoline, 2030

South Africa to require 10 ppm by this time



Countries may apply lower limits for different grades, regions/cities, or based on average content. Detailed information on limits and regulations can be found at www.stratasadvisors.com.

Source: *Stratas Advisors, April 2023*



Octane

Current Market Share of Gasoline Grades by Octane in Top 10 Markets (in %)

Regular grade dominates gasoline pool (RON≤95)

Country/Region	RON < 91	RON = 91	91 < RON < 95	RON = 95	95 < RON < 98	RON ≥ 98
Brazil	-	-	99	-	1	-
China	1	-	65	29	-	5
India	-	96	-	3 ⁽¹⁾	1 ⁽¹⁾	
Indonesia	81.1	-	17.4	1.5		
Iran ⁽²⁾	87	-	-	13	-	-
Japan	90.9	-	-	-	-	9.1
Russia	2.2	-	63.4 ⁽³⁾	33.4	-	1.0
AKI⁽⁴⁾	min. AKI = 87	min. AKI = 89	min. AKI ≥ 91			
Canada	92.6	0.3	7.1			
Mexico	85	-	15			
U.S.	87.2	1.0	11.8			

Notes:

- 1) RON 95, RON 97, RON 99 and RON 100 are available at select stations in select cities.
- 2) RON 95 accounts for 60% of gasoline demand in eight cities while RON 92 accounts for the remaining 40%. For the rest of the country, the split is 40% for RON 95 and 60% for RON 92.
- 3) Grade A-92
- 4) AKI = (RON+MON)/2

Source: Stratas Advisors, April 2023

Current and Future Octane Enhancers Used in Top 10 Markets

MTBE and ethanol most common enhancers used

Rank No.	Country	Current Octane Enhancers Used	Future Octane Enhancement Options
1	U.S.	Ethanol, biobutanol ⁽¹⁾	Ethanol, biobutanol
2	China	MTBE, methanol, ethanol	MTBE, methanol, ethanol
3	Russia	MTBE, TAME, aromatic amines ⁽²⁾ , potassium	MTBE, TAME, ethanol
4	Japan	ETBE	ETBE
5	India	Ethanol	Ethanol, methanol
6	Canada	Ethanol	Ethanol
7	Indonesia	HOMC ⁽³⁾	HOMC, ethanol, MTBE
8	Mexico	MTBE	MTBE, ethanol
9	Iran	MTBE	MTBE
10	Brazil	Ethanol	Ethanol

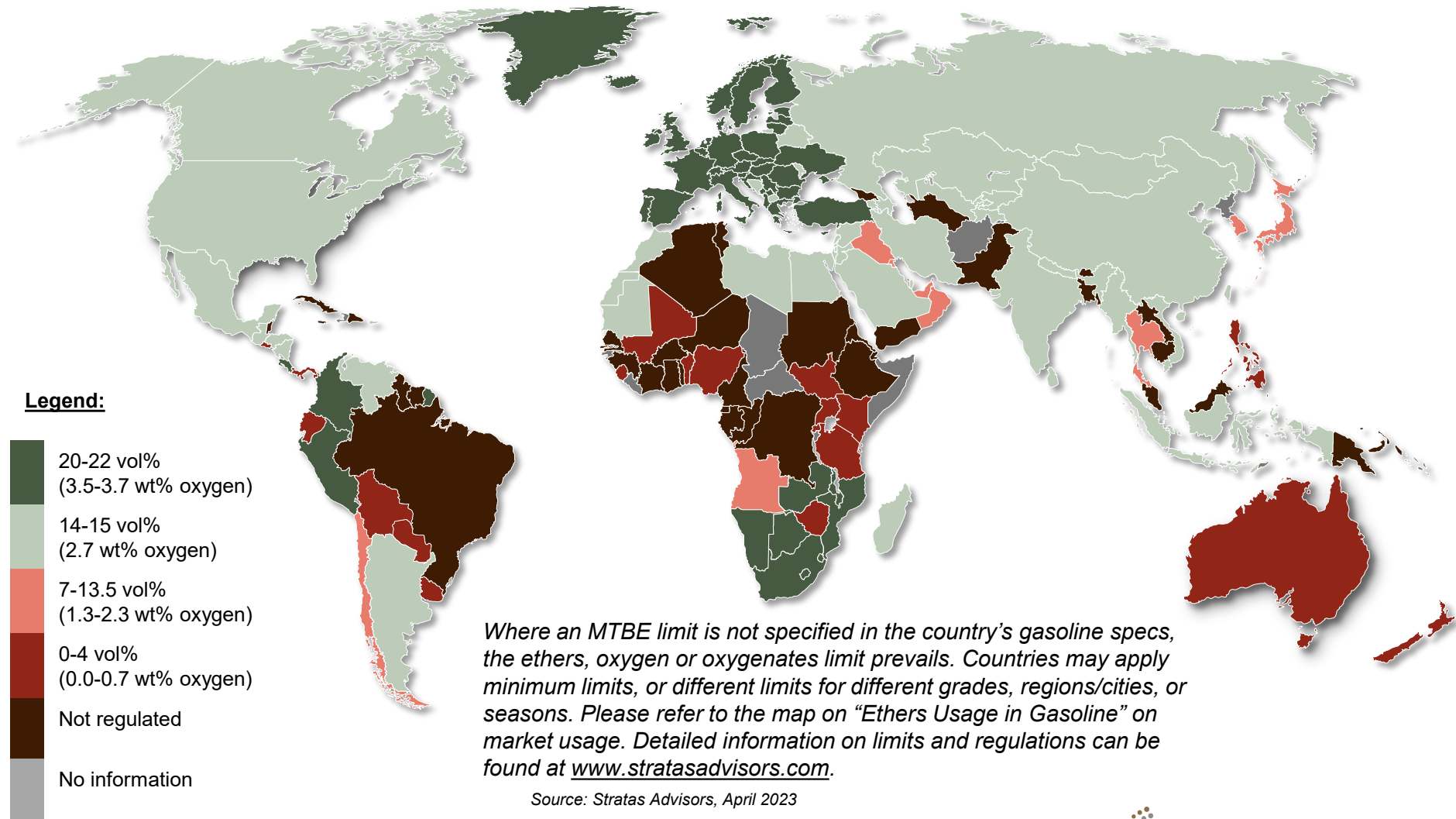
Notes:

- 1) Refiners are ethanol providers, but if there were no requirement to use ethanol under the RFS2 program, many refiners would likely prefer to use reformate, isomerate and alkylate to enhance octane and not ethanol. Moreover, the variable impact of ethanol blends on volatility has increased the complexity of refining and transporting gasoline blendstocks.
- 2) Does not apply to NMA.
- 3) HOMC – high octane mogas component, consisting of mainly reformates. Imported gasoline may contain MTBE.

Source: *Stratas Advisors, April 2023*

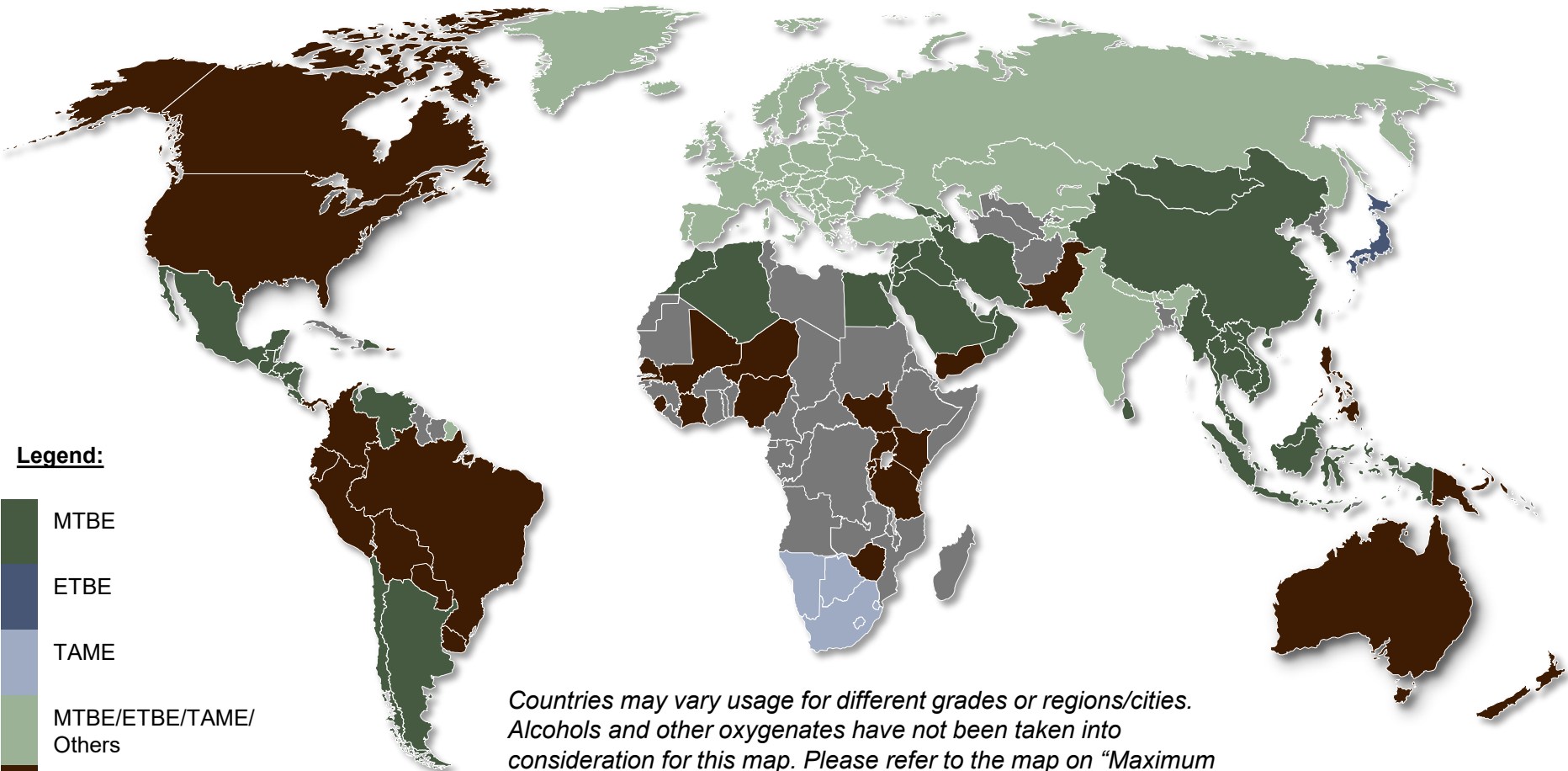
Maximum Ether Limits in Gasoline

Many countries set a common ethers limit of 15 vol%



Ethers Usage in Gasoline

Several countries commonly use MTBE



Legend:

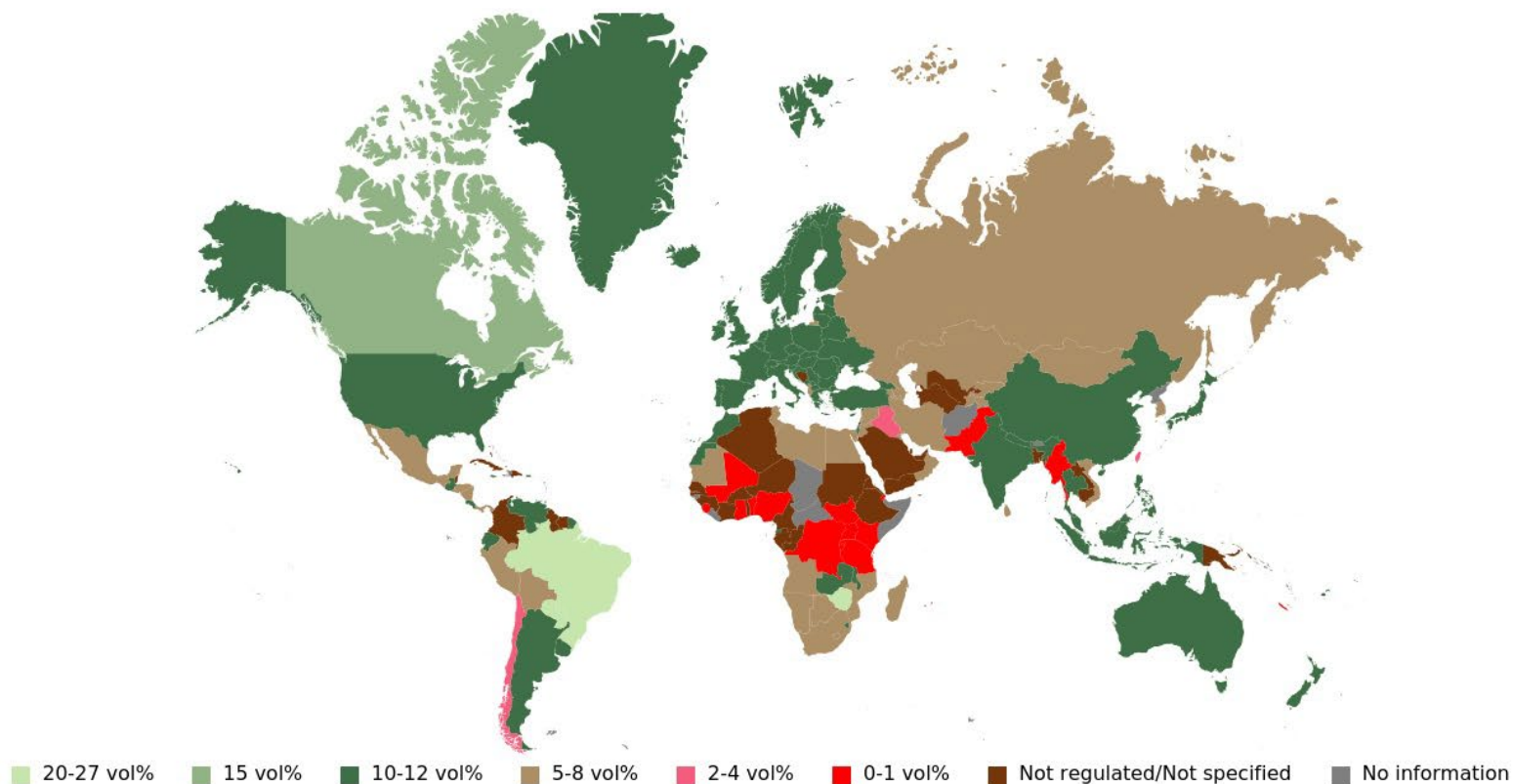
- MTBE
- ETBE
- TAME
- MTBE/ETBE/TAME/
Others
- No usage
- No information

Countries may vary usage for different grades or regions/cities. Alcohols and other oxygenates have not been taken into consideration for this map. Please refer to the map on "Maximum Ether Limits in Gasoline" on regulatory limits. Detailed information on limits and regulations can be found at www.stratasadvisors.com.

Source: Stratas Advisors, April 2023

Maximum Ethanol Blending Limits

Only Brazil, Paraguay and Zimbabwe allow ≥ 20 vol% ethanol

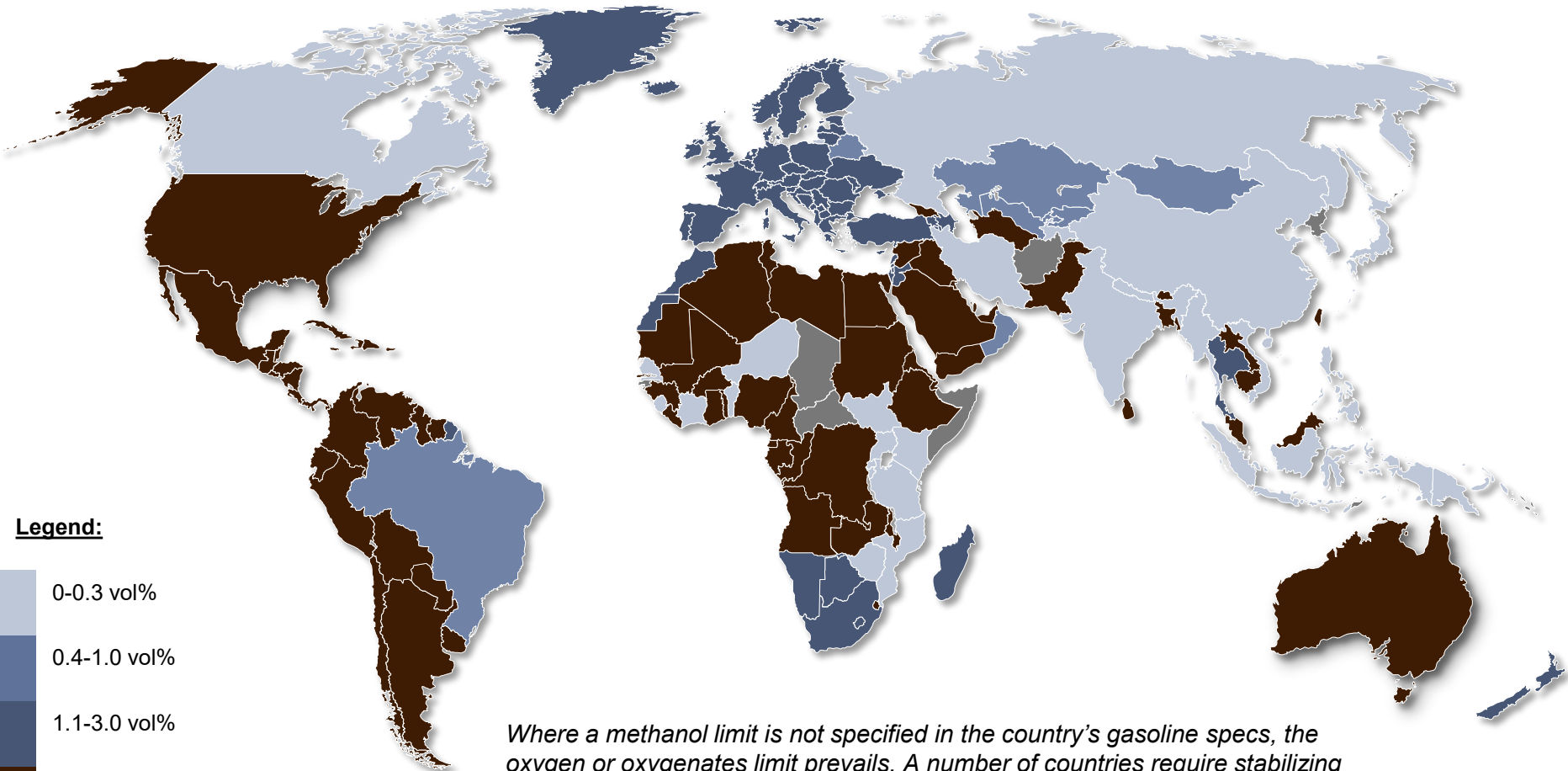


Equivalent limits apply if ETBE is directly blended into gasoline instead of ethanol. Where an ethanol limit is not specified in the country's gasoline specs, the oxygen or oxygenates limit prevails. Other blends may be allowed (e.g. E15, E20, E85). The limit shown for Brazil is a minimum limit, as a maximum limit is not set. Detailed information on limits and regulations can be found at <http://www.stratasadvisors.com>.

Source: Stratas Advisors, April 2023

Maximum Methanol Blending Limits

India does not allow methanol in conventional gasoline despite setting a national M15 standard since January 2019



Legend:

- 0-0.3 vol%
- 0.4-1.0 vol%
- 1.1-3.0 vol%
- Not regulated
- No information

Where a methanol limit is not specified in the country's gasoline specs, the oxygen or oxygenates limit prevails. A number of countries require stabilizing agents, or specify the limit in wt%. Detailed information on limits and regulations can be found at www.stratasadvisors.com.

Source: Stratas Advisors, April 2023

MMT Usage in Gasoline

Mainly used in Africa and Latin America

Region	Countries with confirmed usage	Countries with suspected usage / contained in imported gasoline
Africa	Senegal, South Africa, Zambia	Algeria, Angola, DR Congo, Gabon, Ghana, Namibia, Nigeria
Asia Pacific	Pakistan	Afghanistan, Australia, Philippines, Vietnam
Europe	Ukraine	-
Latin America & Caribbean	Argentina, Bolivia, Jamaica, Puerto Rico	Haiti, Honduras
Middle East	Jordan, Syria	Kuwait

Source: Stratas Advisors, April 2023

Current Blending Limits of Octane Enhancers in Conventional Gasoline

Only Russia currently sets a limit for NMA use

Country	China	EU	Japan	Russia	U.S.
RON, min	89/92/95/98	95 ⁽¹⁾	89/96	80/92/95/98	-
Aromatics, vol%, max	35	35.0	-	35.0	-
Oxygen, wt%, max	2.7	3.7 ⁽²⁾	1.3 ⁽³⁾	2.7	2.7 ⁽⁶⁾
Methanol, vol%, max	0.3 wt%	3.0	-	None	-
Ethanol, vol%, max	-	10.0 ⁽²⁾	3 ⁽³⁾	5.0 ⁽⁵⁾	(6)
Ethers, vol%, max	-	22.0 ⁽²⁾	7 ⁽³⁾⁽⁴⁾	15.0	-
Manganese, g/l, max	0.002	0.002	-	None	(7)
Iron, g/l, max	0.01	-	-	None	-
N-methylaniline (NMA), vol%, max	-	-	-	None	-

Notes:

- 1) Member States may decide to continue to permit the marketing of gasoline with a minimum MON of 81 and RON of 91.
- 2) E5 with ethanol content of 5 vol% max, ethers (5 or more C atoms) of 22 vol% and oxygen content of 2.7 wt% max is a protection grade.
- 3) E10 grade allows up to 3.7 wt% oxygen, i.e., 10 vol% ethanol or 22 vol% MTBE.
- 4) MTBE voluntarily phased out in Japan. Limit now applies to ETBE which is currently in use.
- 5) Stabilizing agents may be necessary.
- 6) If ethanol is the only oxygenate added to gasoline, the maximum oxygen content is 3.5 wt% (which corresponds to 10 vol% ethanol).
- 7) Max 0.0083 g/l for conventional grade and 0 g/l for Phase II Federal RFG grade.

Source: *Stratas Advisors, April 2023*

Outlook on Changes in Gasoline Octane and Use of Octane Enhancers

Lower octane grades to be phased out and ethanol usage to expand

2023	2024	2025	2026
Colombia E5-E10		India E10 → E20	Panama E10
India E20 (select areas)	Costa Rica E8	Indonesia E5	
Indonesia Phase out of RON 88-89 grades	Guatemala E10	Panama E7	
Saudi Arabia MON: 81/- → 81 ⁽¹⁾ /85	Panama E5		
Thailand E10 → E20	Peru Phase out of RON 84 grade in select departments ⁽²⁾		

Notes: Dark red – implemented. Red – confirmed. Blue – Ethanol mandate.

(1) Imported gasoline must have a minimum MON of 81.

(2) Departments include Amazonas, Loreto, Madre de Dios and San Martin. Departments of Loreto and Ucayali allowed to continue using RON 84.

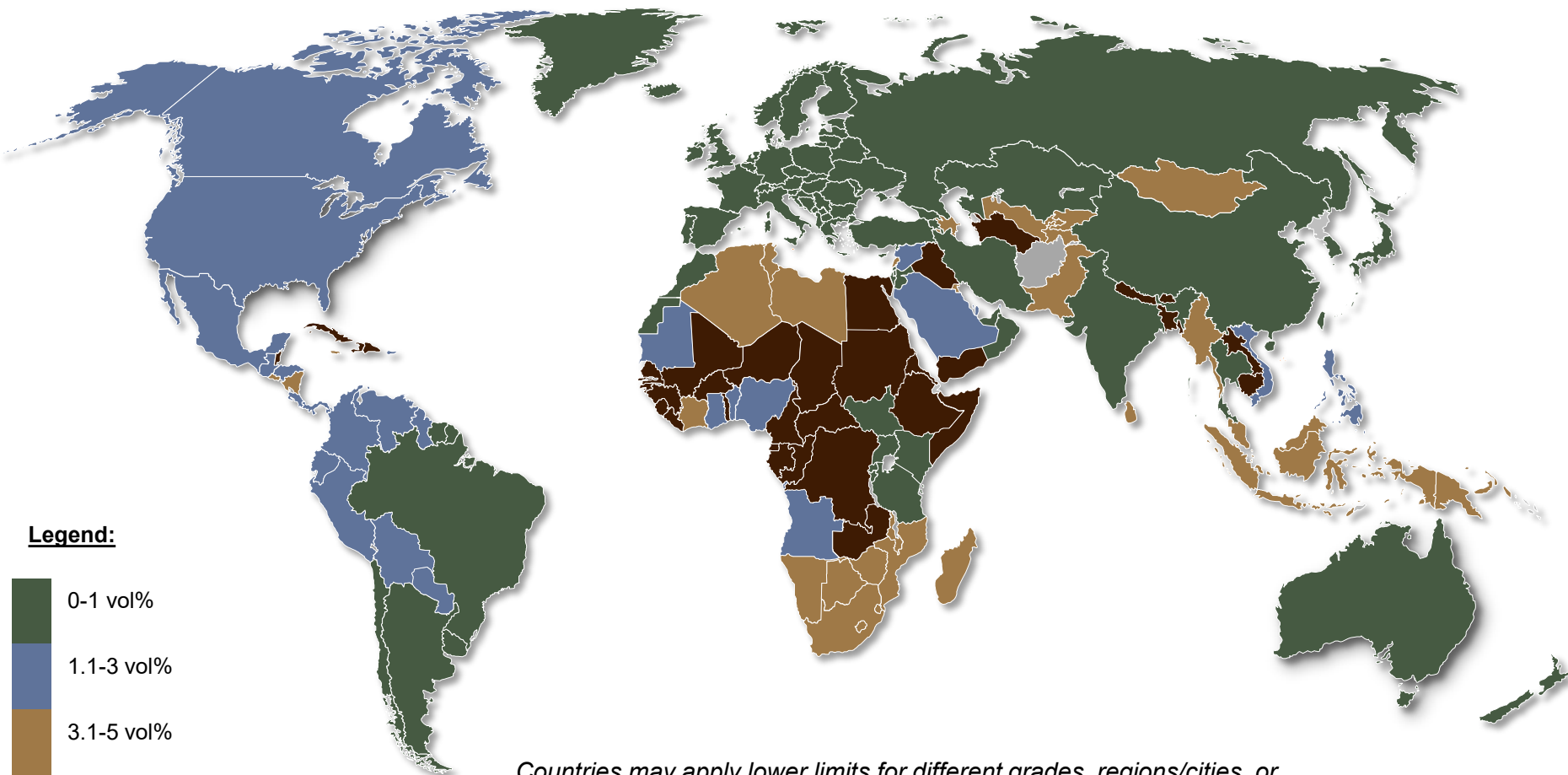
Source: *Stratas Advisors, April 2023*



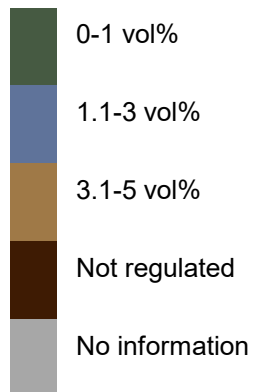
Benzene and Aromatics

Maximum Gasoline Benzene Limits

Parts of Africa and Middle East yet to regulate benzene



Legend:

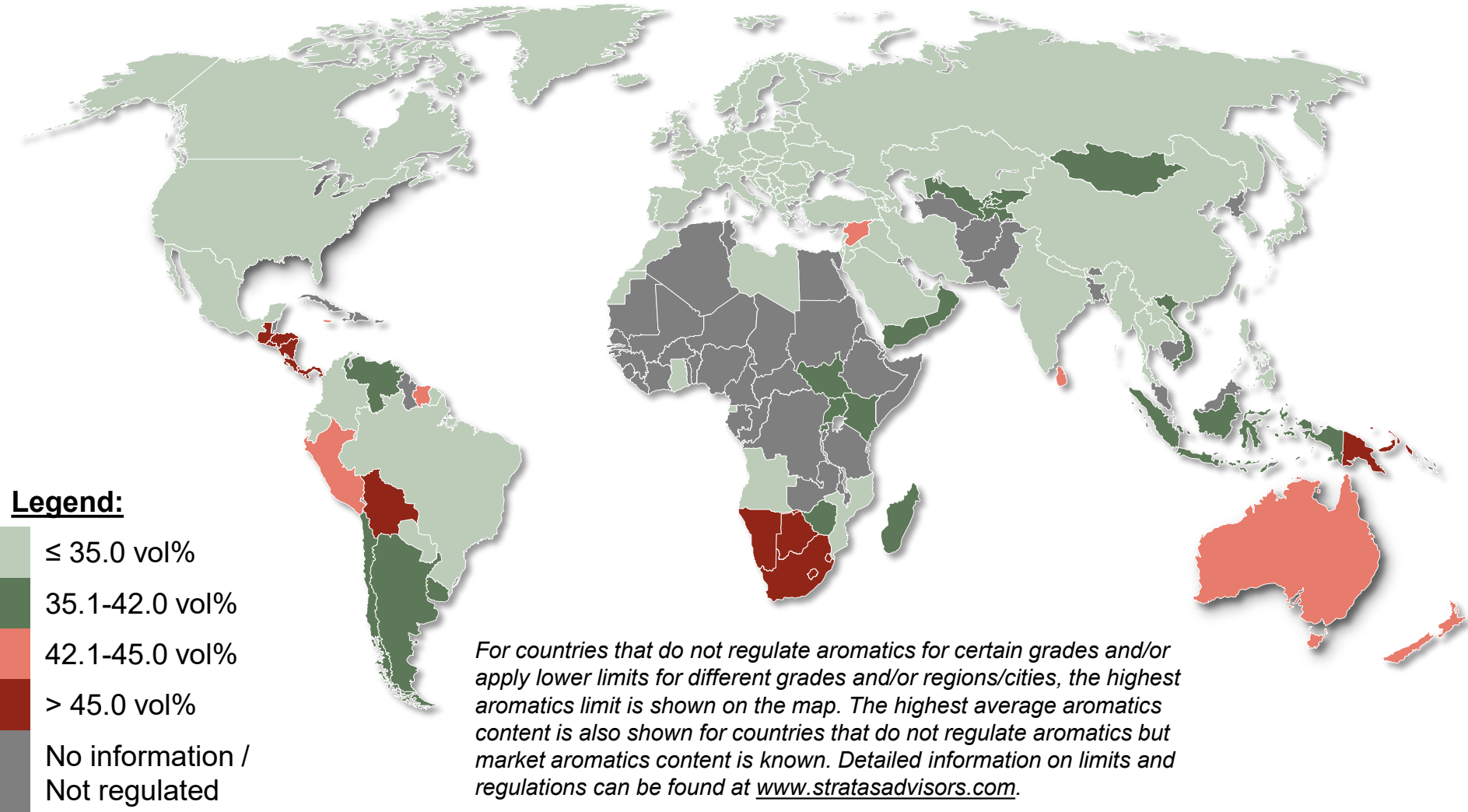


Countries may apply lower limits for different grades, regions/cities, or based on average content. Detailed information on limits and regulations can be found at www.stratasadvisors.com.

Source: Stratas Advisors, April 2023

Maximum Gasoline Aromatics Limits

Parts of Africa yet to regulate aromatics



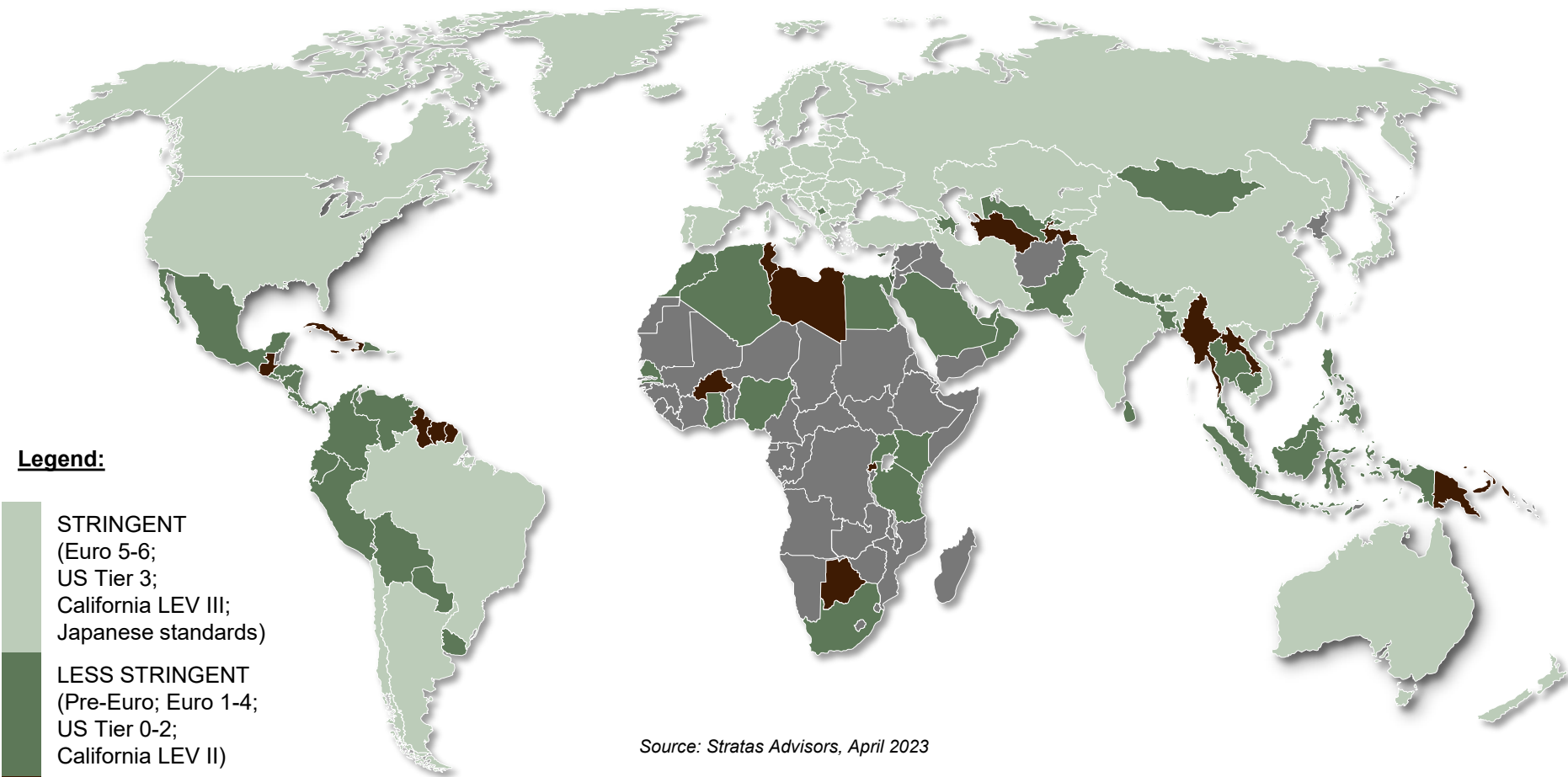
Source: Stratas Advisors, April 2023



Vehicle Emissions and Fuel Efficiency

Current Emission Requirements for New Gasoline Vehicle Models

Stringent requirements in place for top 10 markets except for Indonesia and Mexico



Legend:

- STRINGENT
(Euro 5-6;
US Tier 3;
California LEV III;
Japanese standards)
- LESS STRINGENT
(Pre-Euro; Euro 1-4;
US Tier 0-2;
California LEV II)
- Not regulated
- No information

Source: *Stratas Advisors, April 2023*

Current Emission Limits of Gasoline Passenger Cars

Emission limits similar to that of the EU but not entirely identical

Country	China	EU	Japan	Russia
Standard	China 6a	Euro 6⁽¹⁾	-	Euro 5
CO (mg/km)	700	1,000	1,920	1,000
HC (mg/km)	100	100	-	100
NMHC (mg/km)	68	68	80	68
NOx (mg/km)	60	60	80	60
NO2 (mg/km)	20	-	-	-
PM (mg/km)	4.5	4.5 ⁽²⁾	7 ⁽⁴⁾	5 ⁽²⁾
Particle number (#/km)	6.0x10 ¹¹	6.0x10 ¹¹⁽²⁾⁽³⁾	-	-

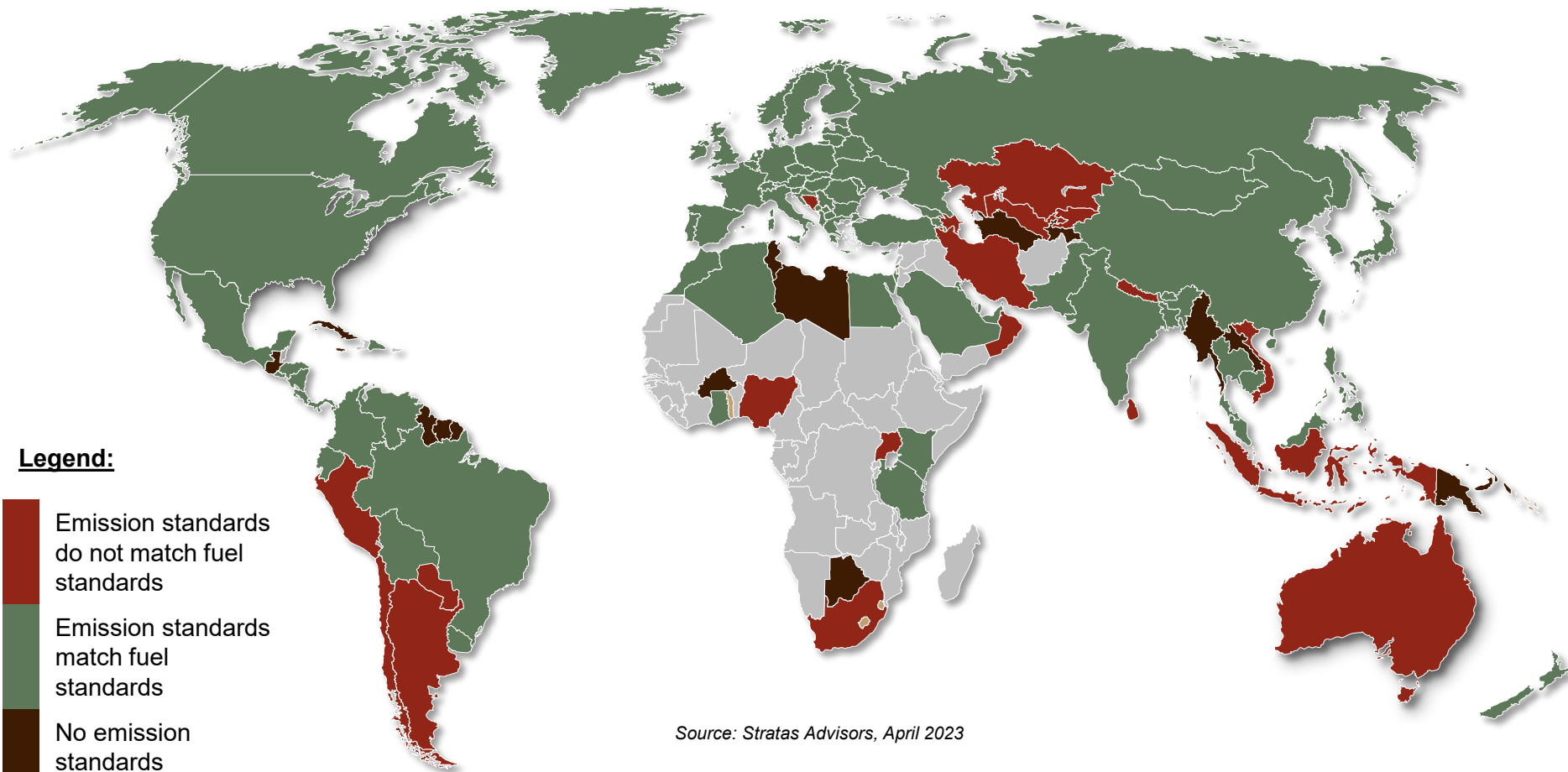
Notes:

- 1) Limits applicable to the lightest class of LDV, i.e., vehicles with a reference mass on 1,305 kg or less. Different limits apply to heavier vehicle classes.
- 2) Only applicable to positive-ignition vehicles with direct injection engines.
- 3) Until three years after the date when Euro 6 type-approval takes effect, a particle number limit of 6.0x10¹² shall apply to Euro 6 positive-ignition direct injection vehicles upon the choice of the manufacturer.
- 4) Applies only to lean burn direct injection vehicles which are equipped with an absorption type NOx reduction catalyst.

Source: *Stratas Advisors, April 2023*

Gap between Current Vehicle Emission Standards and Gasoline Quality

Gaps in Australia, South Africa and parts of the CIS, Middle East and Latin America



Source: *Stratas Advisors, April 2023*

Outlook on Emission Requirements for New Gasoline Vehicle Models

Euro 6 took effect Sept. 1, 2014; other countries still introducing Euro 3 to 6

Country	2023	2024	2025	2026	2027	Accompanying fuel quality changes, if any
AFRICA						
EAC ⁽¹⁾	Euro 4					No, already at 50 ppm sulfur
Morocco	Euro 6b					Yes
Nigeria	Euro 3					No
SADC ⁽²⁾		Euro 4 ⁽³⁾				Yes
ASIA PACIFIC						
China	China 6b (LDVs)					Yes
India				Post BS-VI ⁽⁴⁾		No
Japan		New PN limits (gasoline LDVs and MDVs)				No
New Zealand			Euro 6			No, already at 10 ppm sulfur
Thailand		Euro 5	Euro 6			Yes
EUROPE						
EU	Euro 6e (2023-2028)				Euro 7 (2025-2027)	No, already at 10 ppm sulfur
Ukraine			Euro 6			No, already at 10 ppm sulfur
LATIN AMERICA						
Brazil	PROMOT M5 (MCs)		PROCONVE L-8 (LDVs)			No
Colombia	Euro 5 (MCs)					Yes
Costa Rica	Euro 6					No
Peru		Euro 6				Yes
MIDDLE EAST						
GSO ⁽⁵⁾		Euro 5 for Kuwait (MY 2024)				Possible sub-regionwide switch to 10 ppm sulfur

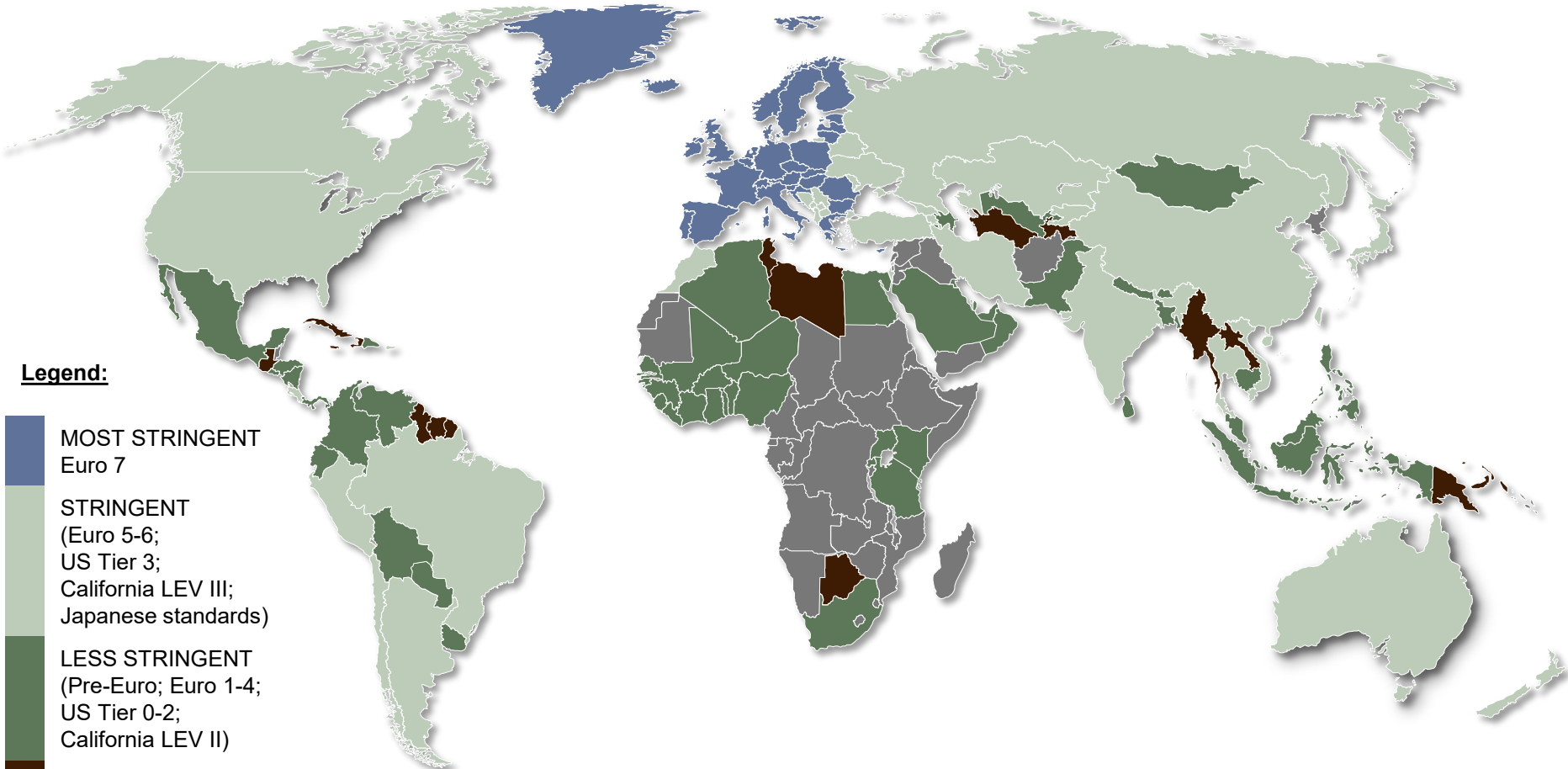
Notes: Dark red – implemented. Red – confirmed. Brown – proposed. LDV – light-duty vehicle. MC – motorcycle. PC – passenger car.

- 1) EAC – East African Community. Member countries include Burundi, Kenya, Rwanda, South Sudan, Tanzania and Uganda.
- 2) SADC – Southern African Development Community. Member countries include Angola, Botswana, Comoros, Democratic Republic of Congo, Eswatini, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Tanzania, Zambia and Zimbabwe.
- 3) Legislation to be in place for each country by 2022.
- 4) Proposed to start in 2026 with a two-year phase-in period.
- 5) GSO – GCC Standardization Organization. Member countries include Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and U.A.E. Euro 4 currently in place for GCC countries with compatible gasoline fuel on their markets.

Source: *Stratas Advisors, April 2023*

Emission Requirements for New Gasoline Vehicles, 2025

Costa Rica and Thailand to require stringent standards by this time



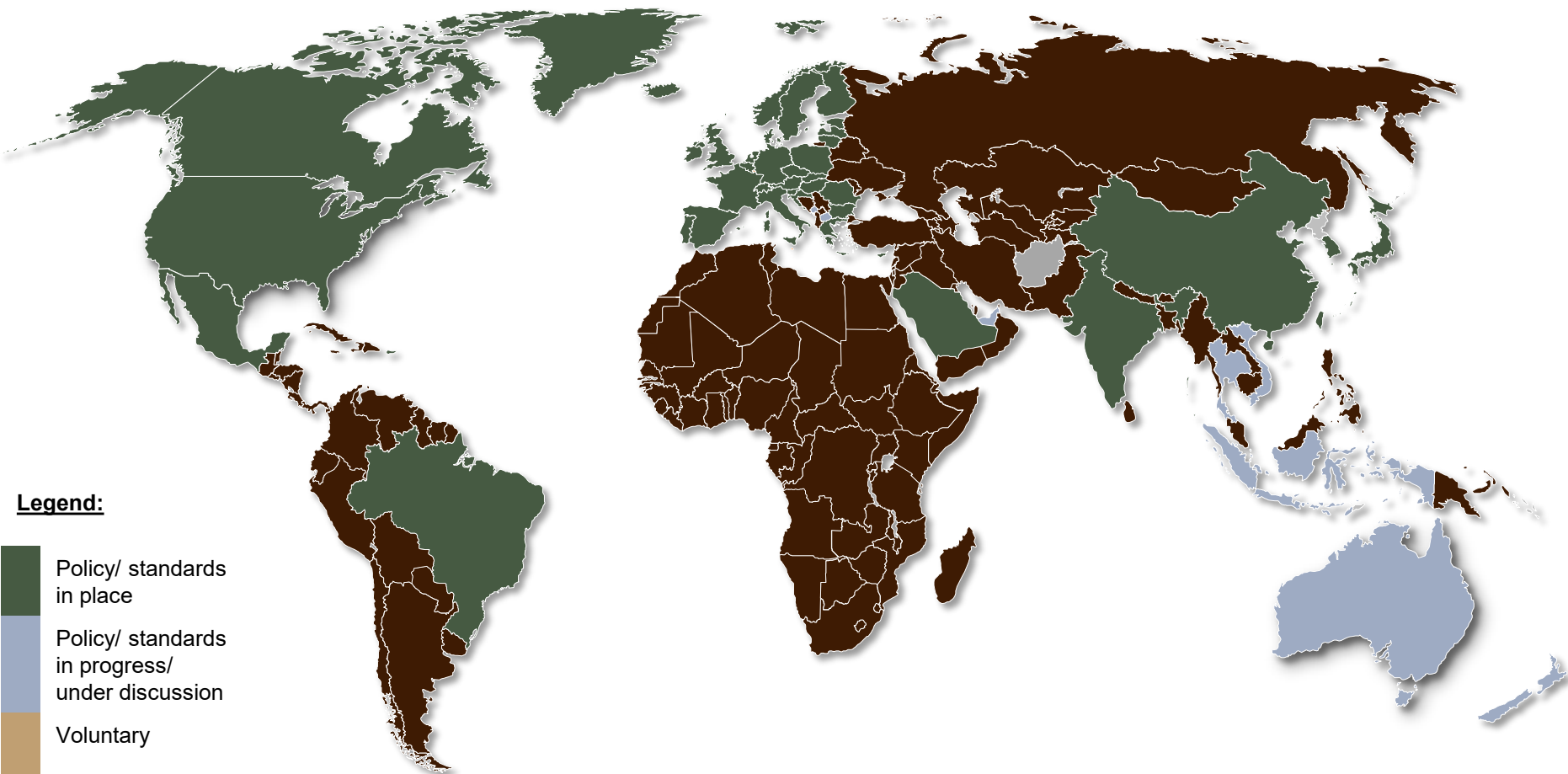
Legend:

- MOST STRINGENT**
Euro 7
- STRINGENT**
(Euro 5-6;
US Tier 3;
California LEV III;
Japanese standards)
- LESS STRINGENT**
(Pre-Euro; Euro 1-4;
US Tier 0-2;
California LEV II)
- Not regulated**
- No information**

Source: Stratas Advisors, April 2023

Current Fuel Efficiency Requirements for Gasoline Vehicles

Policies in place for top markets except Indonesia, Iran and Russia



Legend:

- Policy/ standards in place
- Policy/ standards in progress/ under discussion
- Voluntary
- Not regulated
- No information

Source: Stratass Advisors, April 2023

Outlook on Fuel Economy Requirements for Gasoline Vehicles

Stricter fuel economy targets in six Top 10 markets

Country	2023	2024	2025	2026	2027	Accompanying fuel quality changes, if any
ASIA PACIFIC						
ASEAN ⁽¹⁾			LDVs: 5.3 Lge/km			Yes, for select countries
Australia			LDVs: 105 or 119 or 135 gCO2/km			Yes, 10 ppm sulfur by 2024. Market octane to remain the same at RON 91/95.
China			PCs: 4L/100km			None, already at 10 ppm sulfur. Majority of market octane to remain the same at RON 89/92/95/98.
India	PCs: 4.77 L/100km					None, already at 10 ppm sulfur. Majority of market octane to remain the same at RON 91.
Indonesia			PCs: 3.57 L/100km			Yes, 50 ppm planned over 2021-2024 and 10 ppm from 2025. Market octane to remain the same at RON 88/90/92/95/98 with RON 90 rapidly taking over RON 88's share.
Japan	LDVs: 17.9 km/l (FY 2022)					None, already at 10 ppm sulfur. Market octane to remain the same at RON 90/100.
New Zealand	Annual CO2 Targets (2023-2027) By Jan. 1, 2027: 63.3 gCO2/km for Type A vehicles and 87.2 gCO2/km for Type B vehicles					None, already at 10 ppm sulfur. Market octane to remain the same at RON 91/95.
South Korea				PCs: 33.1 km/L		None, already at 10 ppm sulfur. Market octane to remain the same at RON 92/99.
EUROPE						
EU			PCs and LCVs: 15% less CO2 compared to 2021 levels (2025-2029)			None, already at 10 ppm sulfur. Majority of market octane to remain the same at RON 95.
MIDDLE EAST						
Saudi Arabia			LDVs: 19 km/l			Yes, 10 ppm sulfur by 2022. Market octane to remain the same at RON 91/95.
LATIN AMERICA						
Chile			LCVs and LPVs: 18.8 km/lge (2024-2026) 22.8 km/lge (2027-2029)			None, already at 15 ppm sulfur. Market octane to remain the same at RON 93/95/97.
Mexico			PCs and LDTs: 1.09107886 to 208.1593 gCO2/km (MY 2017-2025)			No, currently at 80 ppm sulfur. Market octane to remain the same at AKI 87/91.
NORTH AMERICA						
Canada & U.S.			PCs and LDTs: 161 gCO2/mi for MY2026 (EPA) CAFE: 49 mpg for MY2026 (NHTSA)			None, already at 10 ppm sulfur. Market octane to remain the same at AKI 87/89/91.

Notes: Dark red – implemented. Red – mandatory. Brown – proposed.

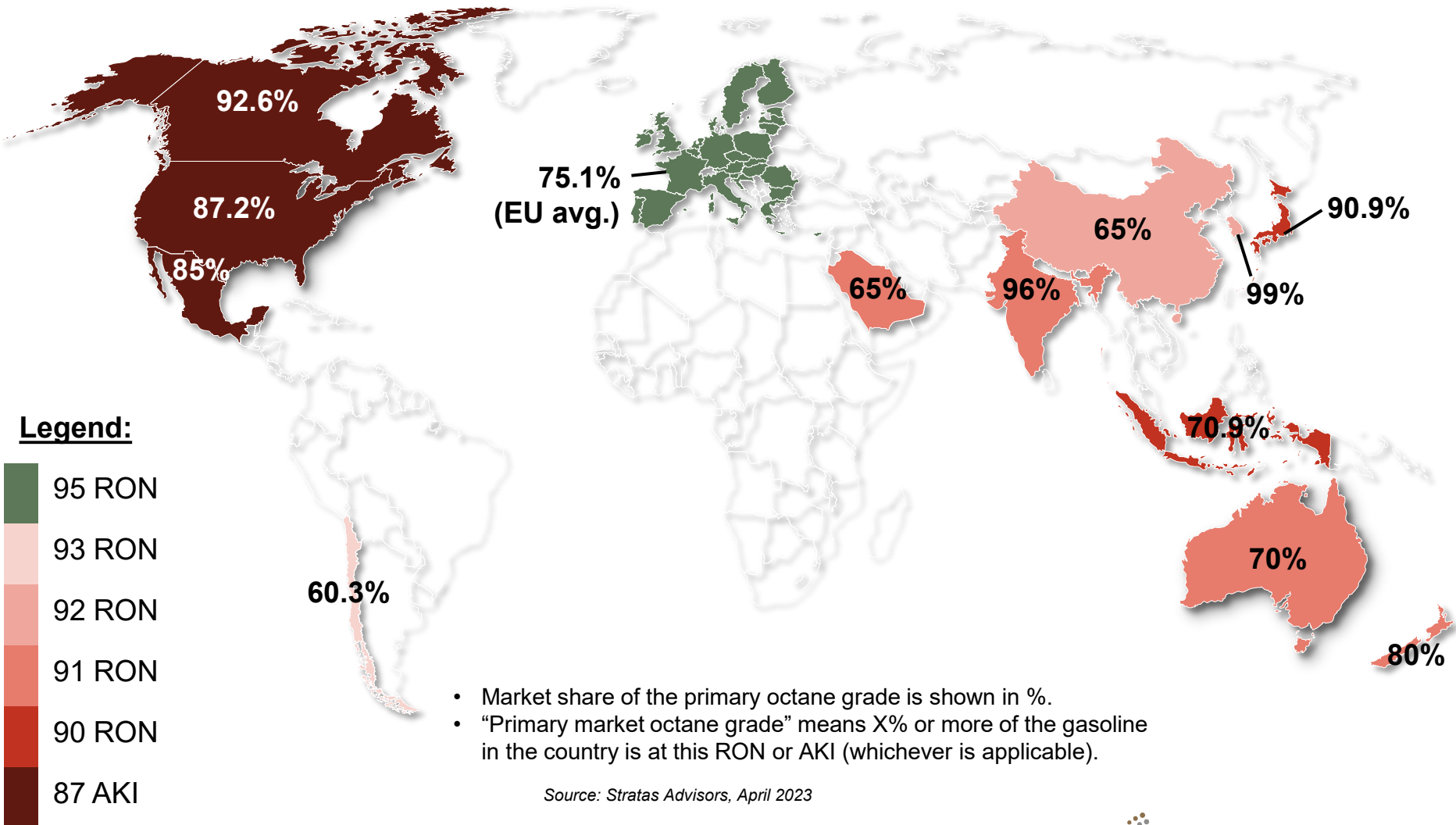
LCV – light commercial vehicle. LDT – light-duty truck. LDV – light-duty vehicle. LPV – light passenger vehicle. MC – motorcycle. PC – passenger car.

(1) ASEAN – Association of Southeast Asian Nations. Member countries include Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam.

Source: *Stratas Advisors, April 2023*

Primary Market Octane Grade in Countries Expecting Fuel Economy Changes

Initial analysis suggests that octane levels may not be enough to meet automaker needs in coming years



Source: Stratas Advisors, April 2023



Summary

Gasoline Spec, Emission and Fuel Economy Changes Expected in Top 10 Markets

Sulfur reduction to 10-50 ppm and new emission and fuel economy standards are key focus

Rank No.	Country	Setting 50 ppm Sulfur Spec?	Setting 10 ppm Sulfur Spec?	Increasing Octane?	Setting New Emission Standards?	Setting New Fuel Economy Standards?
1	U.S.	-	Completed (annual average)	Setting min 87 AKI under discussion	-	✓
2	China	Completed	Completed	Octane reduced to RON 89/92/95/98	✓	✓
3	Russia	Completed	Completed	-	-	-
4	Japan	Completed	Completed	-	-	✓
5	India	Completed	Completed	-	✓	✓
6	Canada	-	Completed (annual average)	-	-	✓
7	Indonesia	✓	✓	In the process of replacing RON 88 gasoline with RON 90	-	✓
8	Mexico	Completed (30 ppm annual average)	-	-	-	-
9	Iran	✓	-	-	✓	-
10	Brazil	Completed	-	-	✓	-

Source: Stratas Advisors, April 2023

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