



Flavour Horizons

Flavour Horizons is a quarterly bulletin providing expert interpretation and analysis of flavour technologies and regulatory issues for senior managers, technologists and innovators in the food, beverage and flavour industries.

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Halal and its Regulatory Hurdles

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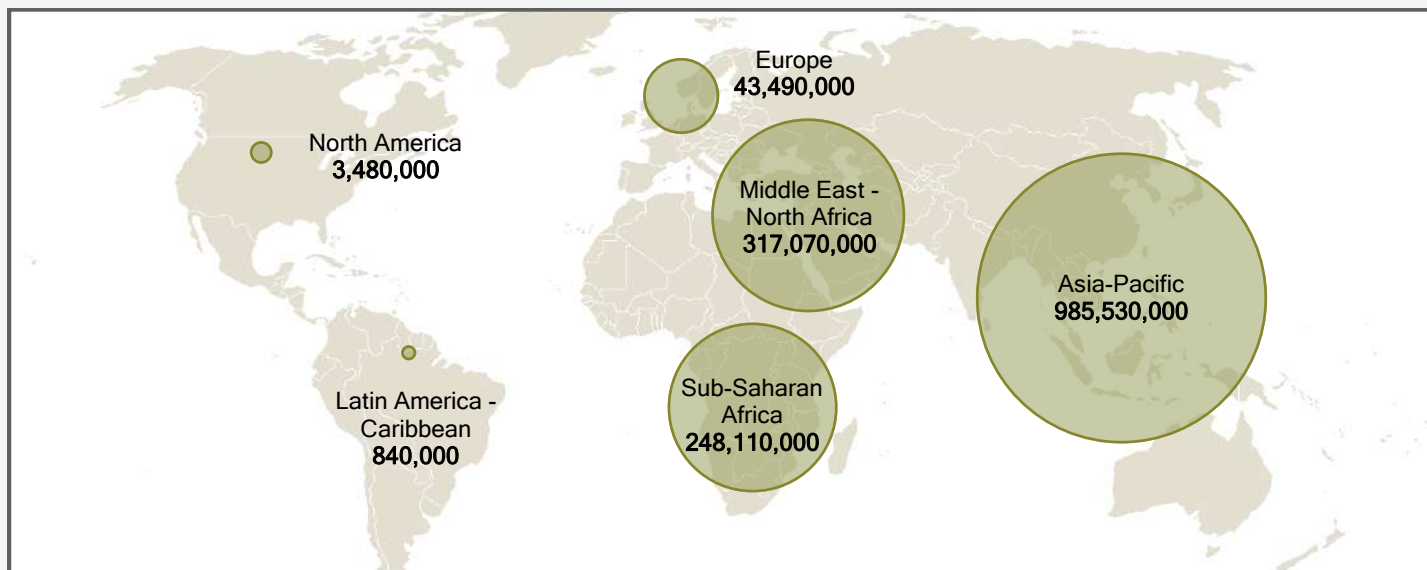
The definition of Halal stems from an Arabic word, which means 'that is allowed or permissible' by Islamic Law. Halal governs all matters of daily life for Muslims, but is most synonymous with permissible food and drink. In recent years, this has

extended to the use of cosmetics and personal care products. Generally, in Islamic law, everything is considered permissible unless prohibited in the scriptures of the *Qu'ran*.^{1,2} However, due to advancements in food processing, it is often difficult to

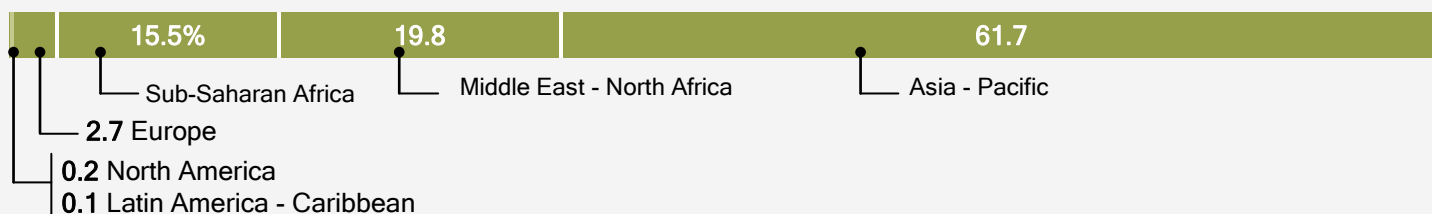
determine whether Halal conditions have been fulfilled and Muslims look to the reassurance of governmental and certification bodies to regulate the food and beverage industries.

Regional Distribution of Muslims

Population by region as of 2010



Percentage of world Muslim population in each region as of 2010



¹ Qu'ran Al Baqarah:168

² Qu'ran Al Baqarah:172

World Muslim Population by Region

	ESTIMATED 2010 MUSLIM POPULATION	ESTIMATED 2010 TOTAL POPULATION	PERCENTAGE OF POPULATION THAT IS MUSLIM
Asia-Pacific	985,530,000	4,054,990,000	24.3%
Middle East - North Africa	317,070,000	341,020,000	93.0
Europe	248,110,000	822,720,000	30.2
North America	43,490,000	344,530,000	5.9
Latin America - Caribbean	3,480,000	590,080,000	1.0
World Total	1,598,510,000	6,895,890,000	23.2

Population estimates are rounded to the ten thousands. Percentages are calculated from unrounded numbers. Percentages may not add to 100 due to rounding.

Pew Research Centre's Forum on Religion & Public Life • Global Religious Landscape, December 2012

World Muslim population

The estimated number of Muslims worldwide in 2010 was 1.6 billion, which represented approximately 23% of the world's population, collectively representing the second largest world religion. The majority of Muslims are concentrated in the Asia-Pacific region (61.7%), with 24.3% of those in Asia-Pacific living in Indonesia (13.1% of the world's Muslim population).^{3,4}

The top three countries with the highest estimated Muslim population in 2010 were Indonesia, Pakistan and India. In 2030, the estimated number of Muslims worldwide is expected to increase to 2.2 billion.¹ According to a PEW study, the Muslim population in Europe has been on the increase from 29.6 million in 1990 to 44.1 million in 2010; it is estimated to be 58 million by 2030.⁵

It is difficult to estimate the actual size of the Halal food market. One report estimates this to have been USD1.1 trillion in 2013, with a projected increase to USD1.6 trillion by 2018.⁶ A report from the World Halal Hub estimates that it could be closer to USD2.3 trillion.⁷ The majority of Muslims subscribe to Halal as a way of life and as a strict dietary prescription. Food manufacturers cannot ignore the lucrative market of a

population of 1.6 billion people.

Certification bodies

The logos of the Halal certification bodies are now no longer just synonymous with being in accordance with the *Qu'ran*, but are associated with *Thoyiban*, wholesomeness. These certifications now represent an endorsement of wholesome foods providing added value and assurance to the Muslim community. Certification logos of these bodies are looked upon as a trusted brand in safeguarding a way of life. Certification bodies generally give product certification, however, in recent years they are increasingly moving towards a Halal Management System, which encompasses GMP, HACCP as well as the Halal aspect of compliance.

JAKIM (a Malaysian based governmental organisation) was the first to start questioning the validity of Halal in the food industry. It was the first on the scene to set the standards and expectations of Halal food for Muslims and started issuing Halal product certifications in 1997.^{8,9} In recent years, MUI (an Indonesian, NGO) has also emerged as a strong regulator for religious affairs and Halal compliancy. Middle Eastern countries follow the *Qu'ran's* scriptures, which teach that everything is Halal unless

proved otherwise. However, the degree of complexity required for food processing has resulted in the recent emergence of a number of regulatory/certification bodies in response to the market needs, particularly in South East Asian models of Halal.

For sheer economic reasons, most business entities comply with MUI directly or indirectly through other certification bodies. Both JAKIM and MUI ensure Halal compliancy through cooperation with various Halal certification bodies throughout the world. Whilst JAKIM recognises certification bodies across all aspects of the food industry (slaughtering and food processing), MUI is more selective in working with different certification bodies and appointing them based on criteria. JAKIM, being a governmental body, only audits other certification bodies and recognises their Halal product certification. MUI is a non-governmental organisation, and functions more as a business entity. Although there are a limited number of certification bodies that it recognises worldwide, it offers Halal certification audits and services to individual businesses outside Indonesia.

³ <http://www.pewforum.org/2011/01/27/the-future-of-the-global-muslim-population/>

⁴ <http://www.pewresearch.org/fact-tank/2013/06/07/worlds-muslim-population-more-widespread-than-you-might-think/>

⁵ <http://www.pewforum.org/2011/01/27/future-of-the-global-muslim-population-regional-europe/>

⁶ <http://www.foodnavigator.com/Regions/Middle-East/Global-Halal-market-to-hit-1.6tn-by-2018>

⁷ http://www.worldhalalforum.org/whf_intro.html

⁸ <http://www.halal.gov.my/v3/index.php/en/corporate/halal-history>

⁹ <http://www.islam.gov.my/en/about-jakim>



The list below shows the various certification bodies that are recognised by both JAKIM and MUI. The blue ticks indicate MUI's recognition of certification bodies for both processed food and for flavours. Aromachemicals, gums and starches can be considered under the criteria for processed foods. This list should be recognised as current at the time of writing this article, as both JAKIM and MUI have in the past, delisted certification bodies and are continuously recognising new certification bodies.

List of approved certification bodies by JAKIM and MUI. [Blue](#) ticks are approved bodies to issue Halal status for processed foods and flavours. [Black](#) ticks are for processed foods only.

Country	Halal Certification Body	JAKIM	MUI
Asia			
China	Shandong Islamic Association China	✓	
China	China Islamic Association China	✓	
China	ARA Halal Development Services Center Inc. (ARA)	✓	
India	Halal Committee-Jamiat-Ulama-E-Maharashtra	✓	
India	Jamiat Ulama-I-Hind Halal Trust	✓	
India	Halal India PVT LTD		
Indonesia	The Indonesian Council of Ulama (MUI)	✓	
Japan	Japan Muslim Association Japan	✓	✓
Korea	Korean Muslim Federation (KMF)	✓	
Malaysia	Jabatan Kemajuan Islam Malaysia (JAKIM)	✓	✓
Pakistan	Jamea Markaz Uloom Islamia Mansoor (JMUIM) Pakistan	✓	
Philippines	Islamic Da'wah Council of the Philippines (IDCP)	✓	
Philippines	National Commission on Muslim Filipinos (NCMF)	✓	
Singapore	Islamic Religious Council of Singapore (MUIS)	✓	✓
Sri Lanka	Halal Accreditation Council (Guarantee) Limited	✓	
Thailand	The Central Islamic Committee of Thailand (CICOT) Thailand	✓	✓
Taiwan	Taiwan Halal Integrity Development Association (THIDA)	✓	✓
Taiwan	Taichung Mosque Taiwan	✓	
Vietnam	Halal Certification Agency Vietnam	✓	

Halal and its Regulatory Hurdles

Australasia	Halal Certification Body	JAKIM	MUI
Australia	Adelaide Mosque Islamic Society of South Australia	✓	
Australia	Islamic Association of Geraldton	✓	
Australia	Islamic Association of Katanning	✓	
Australia	Islamic Co-ordinating Council of Victoria (ICCV)	✓	✓
Australia	Halal Certification Council (HCC)		✓
Australia	Supreme Islamic Council of Halal Meat in Australia Inc. (SICHMA)	✓	✓
Australia	The Perth Mosque of Western Australia Incorporated	✓	
Australia	Australian Halal Authority & Advisers Office 1Western Australia	✓	
Australia	Al-Iman Islamic Society	✓	
Australia	Global Halal Trade Center GHTC, Victoria		✓
Australia	Western Australia Halal Authority (WAHA)		✓
Australia	Australian Federation of Islamic Council (AFIC)		✓
New Zealand	Federation of Islamic Associations of New Zealand (FIANZ) New Zealand	✓	
New Zealand	Asia Pacific Halal Service (APHS-NZ)		✓

Europe

Austria	Islamic Information and Documentation Center	✓	
Belgium	Halal Food Council of Europe (HFCE)	✓	✓
Netherlands	Control Office of Halal Slaughtering B.V & Halal Quality Control	✓	
Netherlands	Halal Quality Control The Netherlands		✓
Netherlands	Total Quality Halal Correct Certification Netherlands (TQHCC)	✓	✓
Netherlands	Halal Feed and Food Inspection Authority (HFFIA) The Netherlands	✓	✓
Germany	HALAL CONTROL e.K. Germany	✓	✓
France	Ritual Association of Lyon's Great Mosque France	✓	
France	Muslim Institute of Great Mosque of Paris		✓
Italy	Halal International Authority (HIA) ITALY	✓	✓
Poland	The Muslim Religious Union of Poland (MRU/MRAP) Poland	✓	✓
Spain	Instituto Halal De Junta Islamica		✓
Switzerland	Halal Certification Services	✓	✓
Turkey	KAS ULUSLARARASI SERTİFİKASYON Göz. Turkey	✓	
Turkey	Association For The Inspection And Certification Of Food And Supplies (GIMDES) Turkey	✓	
Turkey	Eurasia Halal Services Center		✓
United Kingdom	The Muslim Food Board (UK) United Kingdom	✓	✓
United Kingdom	Halal Food Authority	✓	

USA & Canada

USA	Halal Food Council (HFC)	✓	
USA	Islamic Food and Nutrition Council of America (IFANCA)	✓	✓
USA	Islamic Services of America (ISA)	✓	✓
USA	Islamic Information Center of America (IICA)		✓
USA	America Halal Foundation (AHF)		✓
Canada	Islamic Food and Nutrition Council of America (IFANCA) - Canada		✓
Canada	Halal Montreal Certification Authority	✓	

Latin America

Argentina	The Halal Catering Argentina San Nicolas	✓	
Argentina	Islamic Centre of The Argentine Republic	✓	
Brazil	Islam Dissemination Center for Latin America (CDIAL)	✓	✓
Brazil	Federation of Muslims Associations in Brazil (FAMBRAS)	✓	✓
Chile	Centro Islamico De Chile	✓	

Africa	Halal Certification Body	JAKIM	MUI
Kenya	Kenya Bureau of Halal Certification (KBHC)	✓	
South Africa	National Independent Halal Trust Johannesburg	✓	
South Africa	South African National Halal Authority (SANHA) South Africa	✓	
South Africa	Muslim Judicial Council South Africa	✓	
Sudan	Majlis Fiqh Islami of Sudan/ Halal Authority of Sudan	✓	

Middle East

Kuwait	Ministry of Commerce and Industry, Public Authority of Industry, Kuwait	✓	
Oman	Quality Control Department, Ministry of Commerce & Industry	✓	
Qatar	Qatar Supreme Council of Health, Department of Health Outlets and Food Control	✓	
Yemen	Yemen Standardisation Metrology & Quality Control Organization	✓	
UAE	The Ministry of Environment & Water of the United Arab Emirates	✓	

Criteria for Halal compliance.

The criteria for Halal food and beverages generally address the type of meat, its slaughtering process and alcohol as an intoxicant. The only non-permissible farmed meat is pork. Anything derived from a porcine source is considered Haram (non-permissible). Other farmed meats need to be slaughtered in accordance with the *Qu'ran*. Blood and its by-products are considered Haram.

The two major issues considered when certifying Halal flavours are the use of raw materials (essential oils, natural products, aroma chemicals) and the use of ethyl alcohol. The processing of these ingredients to produce a flavour needs to be free of pork, or if from a meat source, needs to be slaughtered in accordance with *Syariah* prescriptions.

Processes and processing aids that come under scrutiny are:

- Fermentation - media, nutrients, enzymes and resins must not be from a porcine source
- Decolourisation agent (i.e. charcoal) - cannot be derived from bones nor from a *mushbooh/syubhah* (uncertain) source. (i.e. not from porcine or animals which are not slaughtered in accordance to *Syariah* law)
- Calcium base products (e.g. tricalcium phosphate) - must not come from a *syubhah* source (not from porcine or animals which are not slaughtered in accordance to *Syariah* law)
- Fusel oil derivatives (e.g. isoamyl alcohol, isoamyl butyrate, isoamyl acetate) - known as by-products of alcoholic fermentation for beverages and consequently cannot be used. Secondary and

tertiary derivatives of fusel oil are permissible by MUI, however, there is no stance on this by JAKIM

- Lactic acid derivatives - must not come from a *syubhah* source
- Fatty acids - traditionally derived from animals, however majority are now plant derived and less of an issue
- GMO - no porcine DNA
- Essential oils - oil from the enfleurage process needs to be from a non-animal source

The usage of ethyl alcohol would depend on which certification body one subscribes to. There is currently an issue because certification bodies are having difficulty in agreeing on what is an acceptable amount of ethyl alcohol in a Halal product.

Synthetic ethyl alcohol refers to non-fermented sources, for example derived from a petroleum base. However, some leniency is given for the use of fermented sources of ethyl alcohol, with the condition that it

comes from a source produced purely for industrial use and not for alcoholic beverages.

The use of natural ethyl alcohol is considered permissible by MUI. However, its stance is to issue a

conformance letter indicating the acceptability of the use of ethyl alcohol in a Halal ingredient, but it will not be Halal certified at a product level. JAKIM allows 0.5% ethyl alcohol at a consumption level.

Limits to the use of ethyl alcohol by various certification bodies¹⁰

JAKIM (Malaysia)	• Light beverages processed/made not for the purpose of producing wine and containing alcohol below the level of 1% v/v are permissible to be consumed. • 0.5% of synthetic ethanol in the final product
MUIS (Singapore)	• The permissibility of using ethanol is exclusively for the purpose of flavoring. • 0.5% ethanol in flavouring • 0.1% ethanol in the end product
MUI (Indonesia)	• 1.0% for natural ethanol • 0.0% for synthetic ethanol in end product
THAI-FDA (Thailand)	• 0.5% natural and synthetic ethanol in beverages
AOI (Thailand)	• 1.0%
BIRC (Brunei)	• 2.0% natural ethanol in food and beverage products • 0.0% synthetic ethanol
UK	• not allowed
IFANCA (United State)	• 0.5% for ingredients • 0.1% for food items

Global Halal standard

There has been much debate about a global, harmonised system for Halal. However, this is not an easy task, taking into account different region specific religious and cultural practices, country trade interests and the interpretation of the Qu'ran. Some of the contentious issues certification and regulatory bodies face are on the agreement of slaughtering practices, the limits on alcohol at the product or consumer levels and the degree of

traceability. Efforts in harmonisation require discussion among regulators, academics and the industry to ensure the balance of a robust, harmonised system that protects the integrity of Halal but does not overly restrict manufacturing processes. This is a challenge for certification bodies, which must reach agreement on such issues. It is an even bigger challenge for food manufacturers which export their products to identify the most appropriate certification bodies.

Dr Tina Tan has been employed by Matrix Flavours and Fragrances since 2009, although being an established family business, the company has been a part of her life since the day she was born. Tina's Ph.D at the University of Melbourne, Australia, was in synthetic and physical organic chemistry. After spending some time working in academia, she then returned to the family business and assumed the role of General Manager for the Research & Development and Manufacturing divisions of Matrix in 2011.

¹⁰ Najihah A., Nadiyah W.A., *Jurnal Intelek* (2014), 9(1), 40-51