Product Fact Sheet — Cooking products: Residential cooking appliances

Table 30. Overview of Residential cooking appliances

Country	MEPS	High Label	S&L metric	Test procedure	Reference test procedure & metric	Test Procedure (*)	Energy Performance Metric (*)	Notes
Australia	N/A		unknown	AS 4551 (AG 101)	unknown	N/A	N/A	Cooktops and Ranges/ Ovens
China	N/A	N/A	unknown	GB 4706.29-2008 GB 4706.22-2008 GB 21456-2008	unknown	N/A	N/A	Cooktop/Hob
China	82%/5W	90%/2W	Heat Efficiency Value (%)/standby power (W)	GB 21456-2008	unknown	N/A	N/A	Induction cooker
China	N/A		unknown	GB 4706.22 GB24849-2010	IEC60705 ("the old one")	N/A	N/A	Microwave oven
Russia	N/A		kWh	GOST 14919-83E (general); GOST 28398-89 (performance)	IEC 60350-71	N/A	N/A	Electric cooking plates, electric ovens
Russia	N/A		unknown	GOST R 51388-99	IEC 60705	N/A	N/A	Microwave oven
Russia	N/A		Efficiency index (%)	GOST R 50696-2006	EN 30-2-1:1998	N/A	N/A	Gas burners: EN 30-2-1:1998 (is now 2003)
US	1 W - 2.2. W		Watts	10 CFR 430.23(i)	Linkages to IEC 705, IEC 60705 ; IEC 62301 Edition 2.0	N/A	N/A	Microwave oven

					2011-01 (standby power)			
US		≥50%/ <9000 btu/h ≥50%/ <12000 btu/h ≥80%/ <1000W ≥80%/ <1100W	Heavy load cooking energy efficiency (%)/Idle energy rate (Btu/hr - gas, W - elec)	ASTM Standard F1361-99	unknown	N/A	N/A	Fryer
EU	<120		EEI & m3/h	2013.06.04 Ecodesign Regulation	unknown	N/A	N/A	Residential range hood
EU	N/A		unknown	unknown	Possibly EN 60705/ IEC 60705	Un-known - assumed close to 1	N/A	Residential microwave ovens
EU	0.716 kWh/ cycle; 313.5		unknown	2013.06.04 Ecodesign Regulation	unknown	N/A	N/A	Residential cooktop/hob
EU	<146		kWh/y	2013.06.04 Ecodesign Regulation; EN 50304:2009	IEC 60350:1999 (MOD) + A1:2005 (MOD) + A2:2008 (MOD)	N/A	N/A	Residential oven

(*) Conversion factors

Product

1. Residential cooking appliances cook or heat food by means of gas, electricity, or microwave energy. These products are used primarily in homes and apartments. They include kitchen ranges and ovens (including conventional ranges, conventional cooking tops, conventional ovens, microwave ovens, and microwave/conventional ranges) and rice cookers, among others.

Overview of international situation with regards to S&L for this product category

1. Standards are in place in Australia, Brazil, China, the EU, Mexico, the US and Russia – although those in Russia may not be well enforced. The EU is currently developing standards for microwave ovens. In general, where reference standards are referred to, the underlying test

methods have not been available and therefore conversion is not possible.

Notes and assumptions

1. **EU:** the cooktop/hob and oven requirements are found in a single regulation - (EU) No 66/2014

2. **Microwave ovens:** whilst the exact relationships between the test standards used in US, EU, Brazil and Russia have yet to be determined, it is clear that all have, or will have at least some similarities with the IEC 60705, and therefore with each other - providing scope for comparison. However; most national test standards - and IEC 60705 - are not freely available.

3. **Rice Cookers:** a 2011, GEF-funded working group found significant differences between the rice cooker test procedures of Hong Kong, South Korea, Thailand and Japan (the study evidently excluded Indonesia): see List of Sources below.

4. **China:** cook top/hob: GB 4706.29-1992 appears to relate to safety standards only (http://www.cn-standard.net/qtweb/debzfy/debzdetail/C4E/657DD68D.shtml)

5. **China:** general: no linkages have been found between national standards (the details of which are unavailable) and international standards.

6. **Mexico:** tortilla making machine: Mexico's national standard NOM-019-ENER is the only known standard for this product (the details of which have not been analyzed).

7. **Russia:** Russia has in place minimum energy performance standards for household electric cooking ranges, cooking plates and cooking ovens, via regulation GOST 14919-83E, last amended in March, 1999. Standards for electric cooking ranges, hobs, ovens and grills are based on the international test standard IEC 60350-71, which is not freely available and has not been analyzed. A mandatory comparative label is effective, for kitchen stoves/ranges – the details of which are unknown.

8. **Russia:** Microwave ovens may subject to a mandatory, comparative (A-G) labeling regulation GOST R 51388-99, last known to be in draft form, referencing international test standard IEC 60705 , which is not freely available and has not been analyzed.

9. **Russia:** Gas Burners are subject to minimum energy performance standards via regulation GOST R 50696-2006, based on the test standard EN 30-2-1:1998 (subsequently updated to 2003).

10. **US:** microwave ovens: includes the measurement of standby mode and off mode energy use. The Department of Energy is responsible for assessing and determining appropriate cooking appliance test standards; standards are under development.

11. **EU:** Ecodesign and labeling regulations are under development for microwave ovens, domestic ovens, hobs and range hoods. Microwave ovens. It s is likely that related test procedures will at least reference EN/IEC 60705 . Domestic ovens (including when incorporated in cookers), domestic hobs and domestic electric range hoods, also when used for non-domestic purposes: Ecodesign requirements were adopted in July, 2013 and labeling requirements were adopted in October 2013. Test standards are determined via European Commission-appointed Working Groups, typically comprising experts representing industry and Member States. Further information on Ecodesign test standards is available in published Working Documents (see references section, below).

List of sources

Rice cookers:
https://www.google.co.nz/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&ved=0CCoQFjAA&url=http%3A%2F%2Fwww.stc-group.org%2Fen%2Fserviceshow.aspx%3Fpcl1_id%3D57%26pcl2_id%3D5%26p_id%3D180&ei=HyvnUpa7JcubiQeY4ICADg&usg=AFQjCNESpPoAWMwuxFq-Wu9pNVJe4afx0Q&sig2=KCK6-MjJaBN427q96AYYbw ; p16, 107

China: cooktop/hob:
http://www.clasponline.org/en/Tools/Tools/SL_Search/SL_SearchResults/SL%20Detail%20Page?m=30694ea3-8431-4a0c-b4d0-052dc823d77c.

China: Induction cooker:
http://www.energylabel.gov.cn/en/EnergyEfficiencyStandards/FormulationandRevisionofStandards/detail/724.html

China: microwave oven:
http://www.energylabel.gov.cn/en/LabelNews/LabelRelatedActivities/detail/743.html

EU:(EU) No 66/2014 Ecodesign requirements for domestic ovens, hobs and range hoods :
http://www.eup-network.de/fileadmin/user_upload/2013.06.04_Ecodesign_Regulation.pdf

EU: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2014:029:0033:0047:EN:PDF

Russia: electric cooking plates, electric ovens.
http://www.personal.ceu.hu/students/03/Alexandra_Novikova/Standards/MEPS/Ranges_electric/GOST_14919_83.html

Russia: gas burners:
http://www.personal.ceu.hu/students/03/Alexandra_Novikova/Standards/MEPS/Gas_cookers/GOST_50696_2006.html

Russia: microwave ovens:

http://www.personal.ceu.hu/students/03/Alexandra_Novikova/Standards/Labeling/Microwave/microwave_ovens_mandatory_labeling.html

US: microwave ovens: http://www.regulations.gov/#!documentDetail;D=EERE-2011-BT-STD-0048-0027

Other: http://www1.eere.energy.gov/buildings/appliance_standards/product.aspx/productid/57

Product Fact Sheet — Cooking products: Commercial cooking appliances

Table 31. Overview of Commercial cooking appliances

Country	MEPS	High Label	S&L metric	Test procedure	Reference test procedure & metric	Test Procedure (*)	Energy Performance Metric (*)	Notes
EU	N/A		EEI	See Working Document (sources section, below)	unknown	N/A	N/A	Commercial electric oven
EU	N/A		EEI		unknown	N/A	N/A	Commercial gas oven
EU	N/A		EEI		unknown	N/A	N/A	Commercial electric & gas hobs
US		≥70%/1.0kW ≥70%/1.6kW ≥44%/13000 btu/h	Cooking energy efficiency(%)/Idle energy rate (kW)	ASTM F1496	unknown	N/A	N/A	Commercial convection oven
US		50%/400W 50%/530W 50%/670W 50%/800W	Cooking energy efficiency (%)/Idle rate (W)	ASTM Standard F1484-99	unknown	N/A	N/A	Commercial electric steam cooker
US		38%/6250 38%/8350 38%/10400 38%/12500	Cooking energy efficiency (%)/Idle rate (Btu/h)	ASTM Standard F1484-99	unknown	N/A	N/A	Gas steam cooker
US		≥70% < 33 watts/m^2 (355 watts/ft^2) ≥38%	Normalized Idle Energy Rate Btu/h per m^2 (Btu/h per ft^2)	ASTM F1275; ASTM F1605	ASTM F1275; ASTM F1605	N/A	N/A	Griddle

(*) Conversion factors

Product

1. Commercial cooking appliances include kitchen ranges and ovens (including conventional ranges, conventional cooking tops, conventional ovens, microwave ovens, and microwave/conventional ranges). Cooking products cook or heat food by means of gas, electricity, or microwave energy. These products are used primarily in commercial settings.

Overview of international situation with regards to S&L for this product category

1. Cooking products is an emerging area for standards and labeling globally, thus there is little evidence of harmonized test procedures for these products. The US is the only economy where commercial cooking equipment MEPS are currently in place. EU MEPS are in draft form.

2. **US:** no relationship has been found between US standards and standards potentially used in other economies.

3. **EU:** Ecodesign and labeling requirements apply to domestic ovens (including when incorporated in cookers), domestic hobs and domestic electric range hoods, also when used for non-domestic (commercial) purposes: These Ecodesign requirements were adopted in July, 2013 and labeling requirements were adopted in October 2013.

General description of conversion for test procedures and metrics/ efficiency metrics and standards

Conversions have not been attempted due to a lack of information.

Notes and assumptions

No new assumptions. Test procedures differ so substantially that no meaningful assumptions regarding the comparability of these could be made.

EU: The table above provides standards for dedicated commercial cooking equipment, and for so-called residential equipment, that may nonetheless be applied commercially. The former are in draft form, while the latter have been implemented. The EU uses test standards for safety and for measuring the performance of commercial gas stoves (EN 203-2-1:2005) and domestic gas stoves (EN 30-2-1: 1998/A2: 2005).

List of sources

US: microwave ovens: http://www.law.cornell.edu/cfr/text/21/1030.10; ASTM standards are not freely available

EU: Commission Working Document on possible Ecodesign Requirements for domestic and commercial ovens, hobs, grills and domestic range hoods: https://www.energimyndigheten.se/Global/F%C3%B6retag/Ekodesign/Produktgrupper/ugnar/WD%20Kitchen%20appliances%20Ecodesign%20Regulation%20for%20CF%20final%20(2).pdf;

Gas stoves (p26): http://china.lbl.gov/sites/all/files/pc_gas_stove_0.pdf (p26)

Product Fact Sheet — Cooking products: Coffee makers

Table 32. Overview of Coffee makers

Country	MEPS	High Label	S&L metric	Test procedure	Reference test procedure & metric	Test Procedure (*)	Energy Performance Metric (*)	Notes
EU	Standby: 1 Watt		Watts — standby	EN 50564:2011;	**IEC 62301: 2011 (modified)**	N/A	N/A	Domestic (non-tertiary_ coffee machines - MEPS
Australia	Standby:1-2.5 Watts		Watts — standby	unknown	unknown	N/A	N/A	

(*) Conversion factors

Product

1. There are several types of coffee maker: the most common products are filter coffee machines and espresso machines. Besides the principle of operation, these products are differentiated mainly by their constituent materials. The filter coffee machines usually have a glass bowl, while the espresso machines contains a larger amount of ferrous materials. Both types of products generally contain an electrical system for heating water, a pump, a housing (typically including the water tank) and a percolation system.

Overview of international situation with regards to S&L for this product category

1. Minimum efficiency standards of coffee machines are in place in the EU and are being formally considered in Australia. Labeling is being formally considered in the US.

2. EU: non-tertiary coffee machines are regulated via a standby power minimum energy performance measure

3. US: ENERGY STAR has produced a scoping study considering labeling of US coffee machines (see reference section below).

4. Australia: a scoping paper considering MEPS has been published by the Australian Greenhouse Office.

General description of conversion for test procedures and metrics/ efficiency metrics and standards

1. **US:** ENERGY STAR: the scoping study referenced below identifies several test procedures used internationally, including IEC 62301 Household Electrical Appliances — Measurement of Standby Power — standard is not freely available.

2. **EU:** Ecodesign proposal relates to standby energy consumption only. Based on the abstract describing EN 50564:2011, it appears that the underlying standard is IEC 62301: 2011 (modified), however the exact conversion remains unclear – both standards are not freely available.

3. **Australia:** the Australian Greenhouse Office has produced (2004) proposals for the standby energy consumption of espresso coffee machines.

Notes and assumptions

EU: other known (but unavailable) test standards include:
EN 60661:2001 (pr=13638) – Methods for measuring the performance of electric household coffee makers;
EN 60661:2001/A1:2003 (pr=14420) - Methods for measuring the performance of electric household coffee makers; and
EN 60661:2001/A2:2005 (pr=16388) - Methods for measuring the performance of electric household coffee makers (see source below).

List of sources

US: ENERGY STAR:
http://www.energystar.gov/ia/products/downloads/ENERGY_STAR_Scoping_Report_Coffee_Makers.pdf?ccc3-34cd ; p5

EU: Test method: http://www.eup-network.de/fileadmin/user_upload/Standby_measuring_method.pdf ;

Regulation: http://www.eceee.org/ecodesign/products/Lot25_non_tertiary_coffee_machines ;

Description of EN 50564:
http://www.cenelec.eu/dyn/www/f?p=104:110:5627405059370752::::FSP_LANG_ID,FSP_PROJECT:25,22637 ;

EN 60661:
http://www.cenelec.eu/dyn/www/f?p=104:22:2540179775577250::::FSP_ORG_ID,FSP_LANG_ID:114,25#2

Australia: http://www.energyrating.gov.au/wp-content/uploads/Energy_Rating_Documents/Product_Profiles/Other/Coffee_Machines/sb200408-espresso.pdf