

Mass and Related Quantities, Costa Rica, LACOMET (Laboratorio Costarricense de Metrología)

Calibration or Measurement Service			Measurand Level or Range			Measurement Conditions/Independent Variable		Expanded Uncertainty					NMI internal identifier	Comments
Class	Instrument or Artifact	Instrument Type or Method	Minimum value	Maximum value	Units	Parameter	Specifications	Value	Units	Coverage Factor	Level of Confidence	Is the expanded uncertainty a relative one?		
Conventional mass	Mass standards	Direct comparison	1	1	mg	Temperature	19 °C to 21 °C	0.002	mg	2	95%	No	MF-MA-PR-01	Approved on 26 November 2008
						Relative humidity	45 % to 60 %							
Conventional mass	Mass standards	Direct comparison	2	2	mg	Temperature	19 °C to 21 °C	0.002	mg	2	95%	No	MF-MA-PR-01	Approved on 26 November 2008
						Relative humidity	45 % to 60 %							
Conventional mass	Mass standards	Direct comparison	5	5	mg	Temperature	19 °C to 21 °C	0.002	mg	2	95%	No	MF-MA-PR-01	Approved on 26 November 2008
						Relative humidity	45 % to 60 %							
Conventional mass	Mass standards	Direct comparison	10	10	mg	Temperature	19 °C to 21 °C	0.003	mg	2	95%	No	MF-MA-PR-01	Approved on 26 November 2008
						Relative humidity	45 % to 60 %							
Conventional mass	Mass standards	Direct comparison	20	20	mg	Temperature	19 °C to 21 °C	0.003	mg	2	95%	No	MF-MA-PR-01	Approved on 26 November 2008
						Relative humidity	45 % to 60 %							
Conventional mass	Mass standards	Direct comparison	50	50	mg	Temperature	19 °C to 21 °C	0.004	mg	2	95%	No	MF-MA-PR-01	Approved on 26 November 2008
						Relative humidity	45 % to 60 %							
Conventional mass	Mass standards	Direct comparison	100	100	mg	Temperature	19 °C to 21 °C	0.005	mg	2	95%	No	MF-MA-PR-01	Approved on 26 November 2008
						Relative humidity	45 % to 60 %							
Conventional mass	Mass standards	Direct comparison	200	200	mg	Temperature	19 °C to 21 °C	0.007	mg	2	95%	No	MF-MA-PR-01	Approved on 26 November 2008
						Relative humidity	45 % to 60 %							
Conventional mass	Mass standards	Direct comparison	500	500	mg	Temperature	19 °C to 21 °C	0.008	mg	2	95%	No	MF-MA-PR-01	Approved on 26 November 2008
						Relative humidity	45 % to 60 %							
Conventional mass	Mass standards	Direct comparison	1	1	g	Temperature	19 °C to 21 °C	0.010	mg	2	95%	No	MF-MA-PR-01	Approved on 26 November 2008
						Relative humidity	45 % to 60 %							
Conventional mass	Mass standards	Direct comparison	2	2	g	Temperature	19 °C to 21 °C	0.013	mg	2	95%	No	MF-MA-PR-01	Approved on 26 November 2008
						Relative humidity	45 % to 60 %							
Conventional mass	Mass standards	Direct comparison	5	5	g	Temperature	19 °C to 21 °C	0.017	mg	2	95%	No	MF-MA-PR-01	Approved on 26 November 2008
						Relative humidity	45 % to 60 %							
Conventional mass	Mass standards	Direct comparison	10	10	g	Temperature	19 °C to 21 °C	0.020	mg	2	95%	No	MF-MA-PR-01	Approved on 26 November 2008
						Relative humidity	45 % to 60 %							
Conventional mass	Mass standards	Direct comparison	20	20	g	Temperature	19 °C to 21 °C	0.027	mg	2	95%	No	MF-MA-PR-01	Approved on 26 November 2008
						Relative humidity	45 % to 60 %							
Conventional mass	Mass standards	Direct comparison	50	50	g	Temperature	19 °C to 21 °C	0.033	mg	2	95%	No	MF-MA-PR-01	Approved on 26 November 2008

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Conventional mass	Mass standards	Direct comparison	100	100	g	Relative humidity	45 % to 60 %								
						Temperature	19 °C to 21 °C	0.053	mg	2	95%	No	MF-MA-PR-01	Approved on 26 November 2008	
Conventional mass	Mass standards	Direct comparison	200	200	g	Relative humidity	45 % to 60 %								
						Temperature	19 °C to 21 °C	0.10	mg	2	95%	No	MF-MA-PR-01	Approved on 26 November 2008	
Conventional mass	Mass standards	Direct comparison	500	500	g	Relative humidity	45 % to 60 %								
						Temperature	19 °C to 21 °C	0.27	mg	2	95%	No	MF-MA-PR-01	Approved on 26 November 2008	
Conventional mass	Mass standards	Direct comparison	1	1	kg	Relative humidity	45 % to 60 %								
						Temperature	19 °C to 21 °C	0.53	mg	2	95%	No	MF-MA-PR-01	Approved on 26 November 2008	
Conventional mass	Mass standards	Direct comparison	2	2	kg	Relative humidity	45 % to 60 %								
						Temperature	19 °C to 21 °C	1.5	mg	2	95%	No	MF-MA-PR-01	Approved on 26 November 2008	
Conventional mass	Mass standards	Direct comparison	5	5	kg	Relative humidity	45 % to 60 %								
						Temperature	19 °C to 21 °C	4	mg	2	95%	No	MF-MA-PR-01	Approved on 26 November 2008	
Conventional mass	Mass standards	Direct comparison	10	10	kg	Relative humidity	45 % to 60 %								
						Temperature	19 °C to 21 °C	8	mg	2	95%	No	MF-MA-PR-01	Approved on 26 November 2008	
Conventional mass	Mass standards	Direct comparison	20	20	kg	Relative humidity	45 % to 60 %								
						Temperature	19 °C to 21 °C	20	mg	2	95%	No	MF-MA-PR-01	Approved on 26 November 2008	
Conventional mass	Mass standards	Direct comparison	50	50	kg	Relative humidity	45 % to 60 %								
						Temperature	19 °C to 21 °C	50	mg	2	95%	No	MF-MA-PR-01	Approved on 26 November 2008	
Volume of liquid	Volumetric test measure (one mark pipette, flask)	Gravimetric determination	1	10	mL	Air temperature	18 °C to 22 °C	0.3 to 0.1	%	2	95%	Yes	MF-VO-PR-01	Density formula according to Metrologia, 38, 2001, 301-309 The density formula is used with corrections for air-saturated water and compressibility. Approved on 30 April 2014	
						Liquid	water								
						Water temperature	18 °C to 22 °C								

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Volume of liquid	Volumetric test measure (one mark pipette)	Gravimetric determination	20	100	mL	Air temperature	18 °C to 22 °C	0.08 to 0.04	%	2	95%	Yes	MF-VO-PR-01	Density formula according to Metrologia, 38, 2001, 301-309 The density formula is used with corrections for air-saturated water and compressibility. Approved on 30 April 2014
						Liquid	water							
						Water temperature	18 °C to 22 °C							
Volume of liquid	Volumetric test measure (flask)	Gravimetric determination	20	250	mL	Air temperature	18 °C to 22 °C	0.04 to 0.02	%	2	95%	Yes	MF-VO-PR-01	Density formula according to Metrologia, 38, 2001, 301-309 The density formula is used with corrections for air-saturated water and compressibility. Approved on 30 April 2014
						Liquid	water							
						Water temperature	18 °C to 22 °C							
Volume of liquid	Volumetric test measure (flask)	Gravimetric determination	500	2000	mL	Air temperature	17 °C to 22 °C	0.015	%	2	95%	Yes	MF-VO-PR-01	Density formula according to Metrologia, 38, 2001, 301-309 The density formula is used with corrections for air-saturated water and compressibility. Approved on 30 April 2014
						Liquid	water							
						Water temperature	18 °C to 22 °C							

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Volume of liquid	Volumetric test measure (graduated pipette)	Gravimetric determination	1	25	mL	Air temperature	18 °C to 22 °C	0.5	%	2	95%	Yes	MF-VO-PR-01	Density formula according to Metrologia, 38, 2001, 301-309 The density formula is used with corrections for air-saturated water and compressibility. Approved on 30 April 2014
						Liquid	water							
Volume of liquid	Volumetric test measure (burette)	Gravimetric determination	5	100	mL	Air temperature	18 °C to 22 °C	0.15 to 0.10	%	2	95%	Yes	MF-VO-PR-01	Density formula according to Metrologia, 38, 2001, 301-309 The density formula is used with corrections for air-saturated water and compressibility. Approved on 30 April 2014
						Liquid	water							
Volume of liquid	Volumetric test measure (pycnometer)	Gravimetric determination	10	100	mL	Air temperature	18 °C to 22 °C	0.005	%	2	95%	Yes	MF-VO-PR-01	Density formula according to Metrologia, 38, 2001, 301-309 The density formula is used with corrections for air-saturated water and compressibility. Approved on 30 April 2014
						Liquid	water							
						Water temperature	18 °C to 22 °C							

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Volume of liquid	Volumetric test measure (graduated neck type)	Gravimetric determination	5	20	L	Air temperature	18 °C to 22 °C	0.04 to 0.02	%	2	95%	Yes	MF-VO-PR-01	Density formula according to Metrologia, 38, 2001, 301-309 The density formula is used with corrections for air-saturated water and compressibility. Approved on 30 April 2014
						Liquid	water							
						Water temperature	18 °C to 22 °C							