In the Name of Allah, the Gracious, the Merciful

The Measurement and Calibration Act, 2008

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In the Name of Allah, the Gracious, the Merciful

The Measurement and Calibration Act, Y · · A

(24/6/2008)

Chapter I

Preliminary Provisions

<u>Title</u>

 This Act may be cited as the, "Measurement and Calibration Act, 2008.

Repeal and saving

2. The Weights and Measures Act, 1955 shall be repealed; provided that all the regulations and orders, made thereunder shall remain into force, until they are revoked, or amended, in accordance with the provisions of this Act .

Interpretation

3. In this Act, unless the context otherwise requires, :-

"Administration",	means the General Administration of
	Measurement and Calibration, at the
	Corporation;

"Measurement", means the process pertaining to evaluation, assessment, calculation calibration, comparison, testing, verification, fixing the time, sizes, lengths, weights and quantities;

"Measurement

Instrument", means the tool, or appliance, intended to be used for measurement, or used as a single appliance, or part of an appliance;

Weight Instrument", means all the types of Weight Instruments, used to show the size, quantum and value of things;

Units Symbols", mean the symbols, set out in the Guide of the International System of Units, issued by the International Standards Organization (ISO);

"Metrology", means the science of measurement;

- "Calibration", means all the operations, which specify the value of errors of the Measurement, or Weight Instrument, and upon necessity, determine some of the other Metrology characteristics;
- "Verification", means all the processes conducted by any of the Measurement and Calibration Offices, with a view to ascertain that the Weight, or Measurement Instrument fully satisfies the requirements of the verification systems and legislations; (243)

"Error of Weight and

Measurement Instrument", means the decrease, or increase of the sensitivity of such instruments;

- "Deviation", means being away from the real value of the quantity, or the measured variable; "Sensitivity", means the least value sensed by the Weight, or Measurement Instrument, and effects change therein;
- "Quantity", means the peculiarity of a certain element, or phenomenon, which can be measured, or calculated, out of other measured quantities, and the value of which can be expressed in the form of a numerical value multiplied by a suitable unit;
- "License", means any approval, or permit, under which manufacture, purchase or maintenance of Weight and Measurement Instruments, or approval to practise the profession of maintenance, and conduct calibrations;
 - "Stamp", means minting, carving, engraving and placing marks, or brands, in such manner, as may make them incapable of obliteration or scraping;

- "Food", means any substance consumed by human beings, in eating and drinking; likewise it includes any substance used in its synthesis, or any substance used in the enhancement of its appearance, form , taste, homogeneity or otherwise, and locally and internationally approved;
- "Basic Units", mean the seven units validated, in the international system, by their names and symbols, according to Schedule (1), hereto;
- "Derived Units", mean the units, which are formed of the Basic Units, in accordance with the physiological relations, between the symmetrical quantities in the nomenclatures and symbols, validated in the international system, according to Schedule (2), hereto;

"Prefixes", mean the decimal power, according to the international system set forth in Schedule (3), hereto;

"Supplemental Units", mean the units outside the system of units internationally validated for Weights, and Measures, which are used in the ordinary daily practice, and the international {245} experimental units set forth in Schedule (4)(B), hereto;

"Customary Units", mean the Weights and Measures, not recorded in the Metric System, and permitted to be used for the purposes, for which they have been specified, according to Schedule (5), hereto;

"Primary Sudan

Standards", mean each of the standard Kilogramme, Litre and Metre, kept at the Corporation;

Multiple

Sudan Standards", mean the series of weights, lengths and capacity, allowed to be circulated, according to Schedule (6), hereto;

"Copies", mean the copies of the Multiple Sudan Standards, according to Schedule (7), hereto;

"Other Government Levels", mean government levels of South Sudan and the states;

"Secondary Sudan

Standards", mean the units of the Kilogramme, Litre and Metre, kept at the Measurement and Calibration Units in the states;

"Working Standards", mean the standards, whereby calibration and periodical verification are made; (246)

"Corporation",	means the Sudanese Standards and		
	Metrology Corporation;		
"Minister",	means the Competent Minister, to be		
	specified by the President of the Republic;		
"General Manager",	means the General Manager of the		
	Corporation;		
"Director",	means the Director of the Administration		
	of Measurement and Calibration at the		
	Corporation;		
"Board",	means the Board of Directors of the		
	Corporation;		
"Officer",	means any person appointed under section		
	12, hereof;		

Chapter II

Sudan Weights and Measures

System of measurement and calibration of the Sudan

- 4.(1) The unified system of measurement and calibration in the Sudan shall be a national system, applied to the other government levels, and based upon the system of international units, issued by the International Standardization Organization, namely :-
 - (a) Basic Units;
 - (b) Derived Units;
 - (c) Multiples and Subsidiary Multiples;

(d) Supplemental Units.

- (2) The units, mentioned in sub-section (1) shall be referred to by the international symbols, mentioned in the Guide of the International System of Units, issued by the International Standardization Organization (ISO), hereto.
- (3) Units of measurement and calibration, taken from the Sudanese Customary Units, may be used in accordance with schedule (5), hereto.

System of the Sudan Standards of

Measurement and Calibration

- 5. The national organs shall abide by application of the Standards of Basic Units and the derivatives thereof, and they include the following :-
 - (a) Primary Sudan Standards;
 - (b) Primary Multiple Sudan Standards and their copies;
 - (c) Secondary Sudan Standards;
 - (d) Sudan Working Standards;
 - (e) Substances Standards.

Primary Sudan Standards

6. Primary Sudan Standards shall be kept at the Corporation, under charge of the General Manager; likewise he shall issue the orders for revision and calibration of the same, with the international standards conforming with them, at least once every five years.

Multiple Sudan Standards

7. Multiple Sudan Standards, set forth in Schedule (6), and copies of Multiple Sudan Standards, set forth in Schedule (7), shall be kept, under charge of the Director; likewise he shall issue the order for the revision, calibration and precision of the same with the Primary Sudan Standards, at least once every five years, and renew them, where the matter requires that.

Secondary Sudan Standards

8. Secondary Sudan Standards shall be kept under charge of the Director; and he shall issue orders for calibration thereof, at least once every five years.

Working Sudan Standards

9. The person responsible in the other government levels, shall keep the Working Sudan Standards of the Measurement and Calibration Units in the states; provided that the General Manager shall issue the orders for calibration of the same , at least once every six months, and precision thereof, where the matter requires that .

Sudan Weights and Measures used

- 10.(1) Every commercial transaction, the achievement of which depends upon cash payment, or in kind, that has been concluded, after the coming into force of this Act, shall be made in accordance with one of the Sudan Weights, or Measures;
 - (2) All the fees and taxes, required to be collected, or collected, under weight, or measurement shall be claimed, or collected, under the Sudan Weights and Measures.

Calibration of Weight and Measurement Instruments

11. Every person in possession of a Weight, or Measurement Inst rument, shall register the same, with the Corporation, or any other bodies validated therewith, and present them, for calibration, in accordance with the regulations, made under this Act.

Measurement and Calibration Officers appointed

12. The Corporation may appoint, according to the systems in use in the State, persons possessed of the prescribed qualifications, to be Measurement and Calibration Officers.

Tasks and duties of the Measurement and Calibration Officers

13.(1) The Officer shall have the following tasks and duties, to :-

(a) require Weight and Measurement Instruments, for revision and annual verification;

- (b) verify the fitness of Weight and Measurement Instruments, and revise the same, in accordance with the Standards conforming therewith;
- (c) stamp and hallmark Weight and Measurement Instruments, and issue certificates of Measures and Calibrations;

(d) any other duties, as may be provided for in the Act.

- (2) The Officer shall reject the revision of any Weight, or Measurement Instrument, presented to him for revision, which is in contravention of the provisions of this Act; and likewise he shall reject any forged, imprecise or inaccurate instrument.
- (3) Where he finds, upon presenting the Weight, or Measurement Instrument, for a subsequent revision , and verification, that it no longer conforms with the regulations, in force at the time it has first been stamped, or where he finds, upon calibration and revision, that it is forged, or imprecise, he shall obliterate the stamps, on such instrument, in the prescribed way.

Measurement and Calibration Instruments inspected

14.(1) The Officer may inspect, test and calibrate any Weight, or Measurement Instrument, which he has reasonable grounds to believe that it is used, or may be used in trade, and he may enter any shop, or place, and require production of all the Weight and Measurement Instruments present therein. In case of residential buildings, the Officer shall obtain a permit from the Prosecution Attorney.

- (2) Where the Officer enters, or intends to enter any shops, or places, for exercising his powers , under sub-section (1), and he has reasonable grounds to believe that all the instruments have not been produced, or that they will not be produced, upon request, he may present an application, to the Prosecution Attorney, to issue a warrant of search.
- (3) The Officer may enter any shops, or places used for trade, and by himself, or by requiring the occupier of such shops, or whoever may deputize therefor, to weigh, or measure any commodity, he believes that it has a certain weight, or measurement, and he may require opening and discharge of any parcel, or receptacle, he suspects to contain such commodity, for the purpose of examining the contents thereof.

Weight and Measurement Instruments, with

which a contravention is committed, seized

15. The Officer may seize any Weight, or Measurement Instrument, any goods or trade expenses or any other thing, with respect to which a contravention, under the provisions of this Act, has been committed, pending investigation of the contravention.

Allowed deviation and error

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- 16. Allowed deviation and error shall be as follows :-
 - (a) any Weight, or Measurement in conformity with the laid down Standard Weight, or Measurement, which contains a deviation more than the limits of the prescribed deviation, shall be deemed imprecise;
 - (b) any Weight, or Measurement Instrument, which contains an error, more than the limit of the prescribed error, shall be deemed imprecise .

Chapter III

General Provisions and Penalties

General Provisions

Technical and consultative services

- 17.(1) The Corporation may render technical, or consultative services, in the field of Measurement and Calibration, to any person, or body, after payment of such fees, as may be specified by the regulations.
 - (2) No person, or body shall practice Calibration business, without license, from the Corporation.

penalties

Change of Instrument by way of fraud

18. Whoever, by way of fraud, or disposes in another way, of any Weight, or Measurement Instrument, after revision and stamping the same, with the approval stamp, in such way, as the same may (253) lead to change of precision of such instrument, from any side different from what it has been, at the time of revision and stamping, shall be punished, with imprisonment, for a term, not less than six months, and not exceeding one year, and with such fine, as the Court may specify, or with both, and confiscation of the instrument. Upon his being convicted for a second time, the Court shall, after inflicting the prescribed penalty, order withdrawal of the licence, for a term, of six months, and final withdrawal of the same, where he is convicted for a third time .

Use, possession and sale of Weight and Measurement Instruments for trade purposes prohibited

- 19.(1) No person shall possess, use, sell or offer for sale any Weight, or Measurement Instrument, for the purpose of trade, unless he is permitted therefor; and unless it is revised and stamped.
 - (2) Whoever contravenes the provisions of this section, shall be punished, with fine, or imprisonment, for a term, not exceeding three months, or with both.

Fraud in Weight and Measurement

20.(1) Every person, who sells a commodity by Weight, or Measurement, or number, shall be deemed to have committed an offence, where the sold commodity is less than the Weight, or Measurement or number, under which sale shall have been made.

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- (2) Every person, who offers, or circulates goods, or commodity, for sale by Weight, Measurement, or number shall be deemed to have committed an offence, where the goods, or commodity offered for sale, is less than the Weight, or Measurement or number, under which the goods shall have been offered.
- (3) whoever contravenes the provisions of this section, shall be punished, with fine or imprisonment, for a term, not less than six months, and not exceeding one year, or with both, and in case of his being convicted for a second time, the Court shall, after inflicting the penalty, order withdrawal of the license, for a term, of six months, and final withdrawal of the licence, where he is convicted for a third time.

Decrease of Weight, or Measurement

- 21.(1) No person shall sell, offer for sale or keep for the purpose of sale, any commodity, unless he shows clearly the minimum of the net contents by weight, size, measurement or number, in accordance with the system of Measurement, or Calibration, set out in this Act.
 - (2) Any person, who contravenes the provisions of this section, shall be punished, with such fine, as the Court may specify, or with imprisonment, for a term, not exceeding six months, or with both.

Measurement shown to consumer

- 22.(1) Every person, who sells a commodity by Weight, Measurement or number, shall make the process of Weight, or Measurement seen by the other party.
 - (2) Whoever contravenes the provisions of this section, shall be punished, with such fine, as the Court may specify, or with imprisonment, for a term, not exceeding three months, or with both.

Manufacture, maintenance and calibration of

Weight and Measurement Instruments

- 23.(1) No body or person, shall practise the business of manufacture, maintenance and calibration, without obtaining a prior licence from the Corporation.
 - (2) Whoever contravenes the provisions of this section shall be punished, with such fine, as the Court may specify, or with imprisonment, for a term, not exceeding three months, or with both.
 - (3) The Manager of the Corporation may withdraw the licence, where the body, or person does not abide by the prescribed conditions.

Conformity certificate to import Weight

and Measurement Instruments obtained

- 24.(1) No Weight, or Measurement Instrument shall be imported, save after revision thereof, by the Corporation, and granting the same the conformity certificate.
 - (2) The General Manager of the Corporation may grant the conformity certificate to samples of Measurement and Weight Instruments, representing the quantities intended to be imported; provided that all the quantity, or part thereof, shall be subjected to assurance examination, before allowing the same to be finally released.
 - (3) Whoever contravenes the provisions of sub-section (1), shall be punished with fine, or with imprisonment, for a term, not exceeding three months, or with both, together with confiscation.

The competent Court

25. A person, who contravenes the provisions of this Act, shall be tried before the competent Criminal Court .

Power to make regulations

26. The Board, upon assent of the Minister, may make such regulations, as may be necessary, for implementation of the provisions of this Act.

Schedules

Schedule No. (1)

Basic quantity	Basic units in the		
	International System		
	Name	Symbol	
length	metre	m	The meter is the length of the path travelled by light in vacuum during a time interval of 1/299 792 458 of a second
mass	Kilogram	Kg	The kilogram is the unit of mass equal to the mass of the international prototype of the kilogram kept at the International Weight and Metrology office, approved by the first conference of weights and metrology in 1889.
time	Second	S	The second is a duration of 9192631770 periods of the radiation corresponding to the transition between the two hyperfine levels of the ground state of the caesium 133 atom.
electric current	Ampere A		The Ampere is that constant current, which if maintained in

			two straight parallel conductors of infinite length, of negligible circular cross-section, and placed 1 metre apart in vacuum, would produce between these conductors a force equal to 2 x 10 ⁷ newton per metre of length.
thermodynamic temperature	Kelvin	К	The unit 1 of thermodynamic temperature, is the fraction 1/273,16 of thermodynamic temperature of the triple point of water.
Amount of substance	mole	mol	The mole is the amount of substance of a system which contains as many elementary entities as there are atoms in 0,012 kilogram of carbon 12. when the mole is used, the elementary entities must be specified and may be atoms, molecules, ions, electrons, other particles, or specified groups of such particles.

Luminous intensity	Candela	cd	The candela is the luminous	
			intensity, in a given direction, of a	
			source that emits monochromatic	
			radiation of frequency 540 x 10^{12}	
			hertz and that has a radiant	
			intensity in that direction of	
			1/683 watt per steradian.	

Schedule No. (2)

Derived quantities	Name of derived units	Expression in terms of other
	in the International	units
	System/ Symbol for	
	unit	
plane angle	radian, rad	1 rad = 1m/m=1
solid angle	steradian, sr	$I sr = 1m^2/m^2$
frequency	hertz , Hz	1 Hz = S-1
Force	newton, N	$1 \text{ N} = 1 \text{Kg.m/S}^2$
pressure , stress	Pascal, Pa	$1 \text{ Pa} = 1 \text{N} / \text{M}^2$
Energy, work, amount of	Joule , J	1 J = 1N.M
heat		
power, radiant flux	Watt, W	1 W =1J/S
electric charge,	coulomb, C	1 Col = 1s A
electric potential	Volt, V	1 V=1,/A
difference		
capacitance	Farad, F	1 Fr= 1K/ F
electric resistance	Ohm	1 = 1F/A
electric conductance	Siemens, S	
magnetic flux	Weber, Wb	1 wb = 1 F.S
magnetic flux density	tesla, T	$1 T = 1 wb/ M^2$
Inductance	henry, H	1 H = 1 wb/A
Celsuis	Degree Celsuis ⁰ C	heat degree ⁰ C = 1K
Luminous flux	Lumen, Im	1 Lm = cd Sr

illuminance	Lux, lx	$1 \text{ lx} = \text{Lm/M}^2$
Activity referred to a	Becquerel, Bq	S-1
radionuclide		
Absorbed dose for kind	Gray, Gy	J/Kg
energy, kirma, guide of		
absorbed dose		
Dose equivalent,	Sievert, Sv	J/Kg
equivalent dose guide		

(1) Celsius temperature is special name to Kelvin Unit, to be used on

Celsius temperature value.

Schedule No. (3)

Factor	Prefix in the International System		
	Name	Symbol	
2410	Yotta	Y	
10 21	Zetta	Z	
1810	Еха	E	
15 10	peta	Р	
1210	Tera	Т	
910	Giga	G	
610	Mega	М	
310	Kilo	К	
210	Hecto	н	
110	Deca	Da	

10 - 1	Deci	D
10- 2	Centi	С
10-3	Milli	М
10 -6	Micro	U
10-9	Nano	Ν
10 -12	pico	Р
10- 15	femto	F
10- 18	Atto	A
10 -21	Zepto	Z
10- 24	yacto	Y

Additional Units Schedule (4 – A)

(Units out of the International Standards System)

Quantity	Unit	Definition
Time	Dagiga . D	1 D = 60 S
	Saa'a. Sa	1 Sa= 60 D
	Youm. Youm	1 Youm = 24 Sa
Angle	Degree. [°] 1 [°] = (T/180) Rad	
Plane	Dagiga	1 ⁻ =(1-60°)
	Second	1= (1/60)
Size	Liter, L $1L = 1DM^3$	
Mass	Ton, Ton (Metric) 1 Ton = 310 Kg.	
Level	Nebir, Nb 1 Nb =1	
	Bil, B	1 B = (1/2) inch10 Nb

Additional Units Schedule (4 – B)

Used Units with the International Units and its value comes out

<u>on trial</u>

Quantity	Unit	Definition		
Power	Electron, Volt, Ef	The Electron Volt in the		
		movement power which gained		
		by the electron when passed the		
		pace within voltmeter equal F.		
		1 F = 60277 1x10-19 G		
Atom Mass	Unit of atom mass, Z	It is equal 1/12 of Carbon foid		
		mass 12		
		Ez = 540=1,66x10-27 Kg		
Length	Astronomical unit, WF	1 WF = ,495979 x10 11 M		
		It is a terminology value for the		
		distance between the Earth and		
		the Sun.		

Schedule No. (5)

Inheritances

Metrology	Sudanese	English System	The kilogram and	Using areas
Instrument	Metrology	equation	its dividends'	
	equation		equation	
Fadan	4200 M ²			
Zura'a Baladi	24 carat	22,83 inch	58 centimeter	
Al Oud	4 Zura'a			For Nile lands
Al Oud	6 Zura'a			Kordofan
Al Ragil	5,6 feet			From up finger
				to up finger,
				including Al
				Azru (public
				use)
Al Ragil Al	8 feet			It is special use
Brgidawi				
Gada'a	5 Fadan			For rainy lands
Al Mukhamas	20 Oud x			For lands
	30 Oud			
Mithgal	1,5		4,68 Gram	Kordofan
	Darham			
Darham	48,15		3,14 Gram	For gold and
	Green			precious
				stones

Small gintar	8 tumnna	100 Ratul	44,33 Kilogram	For	rainy
				irrigatio	n
Big gintar		315 Raul		For	cotton
				planted	by
				plane ir	rigation
Ardab		12 Kaila	189 liter		
Kaila			16,5 liter		
Rubu			8,25 liter		
Malua			4,125 liter		
gadah			2,0625 liter		
1 gadah			1,03125 liter		
Camel			135 Kilo	Fire woo	od load

<u>Schedule (6)</u>

Doubled First Sudan references

1000 Kilogram	1 ton (brevity T)
20 kilogram	
10 kilogram	
5 kilogram	
2 kilogram	
1 kilogram	
0,5 kilogram	500 gram (brevity g)
0,2 kilogram	200 gram
0,1 kilogram	100 gram
50 gram	
20 gram	
10 gram	
5 gram	
2 gram	
1 gram	
5 Decigram	(brevity Dg)
2 Decigram	
1 Decigram	
5 Centigram	(brevity Cg)
2 Centigram	

1 Centigram	
5 Milligram	(brevity Mg)
2 Milligram	
1 Milligram	

10 liter	(brevity L.T.
5 liter	
2 liter	
1 liter	
5 Deciliter	(brevity D.L.T)
2 ½ Deciliter	
2 Deciliter	
1 Deciliter	
5 Centiliter	(brevity C.L.T)
2 Centiliter	
1 Centiliter	
5 Milliliter	(brevity M.L.T)
2 Milliliter	
1 Milliliter	

Length Metrology

1 meter and its parts	
1 decimeter	
1 centimeter and its parts	
1 millimeter and its parts	

Size Metrology

0,5 M ³	

Dry Seeds Measures

Ardab	= 198 liter
Kaila	= 16,5 liter
Rubu	= 8,25 liter
Malwa	= 4,125 liter
Gadah	= 2,0625 liter
Half Gadah	= 1,03120 liter

<u>Schedule (7)</u>

Copies of Sudan First References Doubled

Item No.		
1.	20 Kilogram	
2.	10 kilogram	
3.	5 kilogram	
4.	2 kilogram	
5.	1 kilogram	
6.	0,5 kilogram	= 500 gram
7.	0,2 kilogram	= 200 gram
8.	0,1 kilogram	= 100 gram
9.	50 gram	
10.	20 gram	
11.	10 gram	
12.	5 gram	
13.	2 gram	
14.	1 gram	
15.	0,5 gram	= 5 decigram
16.	0,2 gram	= 2 decigram
17.	0,1 gram	= 1 decigram
18.	0,05 gram	= 5 centigram
19.	0,02 gram	= 2 centigram
20.	0,01 gram	= 1 centigram

21. 0,005 gram = 5 milligram 22. 0,002 gram = 2 milligram 23. 0,001 = 1 milligram 24. 50 meter	
23. 0,001 = 1 milligram 24. 50 meter	
24.50 meter25.1 meter and its parts26.1 decimeter27.1 centimeter	
25. 1 meter and its parts 26. 1 decimeter 27. 1 centimeter	
26. 1 decimeter 27. 1 centimeter	
27. 1 centimeter	
28 1 millimeter	
29. 10 liter	
30. 5 liter	
31. 2 liter	
32. 1 liter	
33.0,5 liter= 5 deciliter	
34.0,2 liter= 2 deciliter	
35.0,1 liter= 1 deciliter	
36.0,05 liter= 5 centiliter	
37.0,02 liter= 2 centiliter	
38.0,01 liter= 1 centiliter	
39. 0,005 liter = 5 milliliter	
40.0,002 liter= 2 milliliter	
41.0,001 liter= 1 milliliter	

Item No. 24 is kept at Survey Director's office, Khartoum, and the provisions of item 12 of this list is not applicable thereof.

Items No. 25-28 (inclusive) drawn on one basic measure, and was kept with the rest of items from 1-23 and 29 – 41 inclusive with the Director.

Schedule of Inheritance measures to be submitted with this Act

to be benefited for in transfer transactions or	ly

Measures	
50 pound	2246400 gram
20 pound	8985,6 gram
10 pound	4492,8 gram
5 pound	2246,4 gram
2 pound	898,56 gram
1 pound	449,28 gram
½ pound	224,64 gram
¼ pound	112,32 gram
1/6 pound	74,88 gram
1 ounce	37,44 gram
½ ounce	18,72 gram
¼ ounce	9,36 gram
1 Dirham	3,12 gram
1 hindrdoiet	50,802.8 Kilogram
56 English pound (afwardboa)	25,401.4 Kilogram
28 English pound	12,700.52 kilogram
14 English pound	6,350.26 kilogram
7 English pound	3,175.13 kilogram
4 English pound	1,814.37 kilogram
	273)

2 English pound	0,907.184.86 kilogram
1 English pound	0,453.592.43 kilogram
8 English ounce	0,226.796.2 kilogram
English pound (Afwardioa)	
4 English ounce	113,398.1 gram
2 English ounce	56,699 gram
1 English ounce	28,35 gram
50 English pound	22,679.62 kilogram
20 English pound	9,071.85 kilogram
10 English pound	4,535.92 kilogram
5 English pound	2,267.96 kilogram
1 hundred weight 100 pound	44,928 kilogram
1 big hundred weight 315 pound	141,523.22 kilogram

Gold Measures

10 golden ounce	320 gram
5 ounce	160 gram
2 ounce	64 gram
1 ounce	32 gram
160 granule	16 gram
100 granule	10 gram
50 granule	5 gram
20 granule	2 gram
10 granule	1 gram

5 granule	0,5 gram
2 granule	0,2 gram
1 granule	0.1 gram

Pharmacy measures

1 pharmacy ounce	31,103.5 gram
1 drakum	3,888 gram
1 skruweel	1,296 gram
1 wheat	0,0648 gram

<u>Measures (liquids)</u>

4 gallon	18,1838524 Liter
2 gallon	9,0919262 Liter
1 gallon	4,5459631 Liter
½ gallon	2,27298 Liter
1 quart	1,136 Liter
1 bint	0,568 Liter
½ bint	0,284 Liter
1 ounce English liquid	2,84123 centiliter
1 dalakum liquid	60 millimeter = 3,552 milliliter
1 sukrweel liquid	20 millimeter = 1,184 milliliter
1 Millimeter	059,0 millimeter
2 pound liquid	902,52 centimeter ³

1 pound liquid	451,26 centimeter ³
½ pound liquid	225,63 centimeter ³
¼ pound liquid	112,815 centimeter ³
1/6 pound liquid	75,21 centimeter ³
1/12 pound liquid	37,60 centimeter ³

Non-liquid Measures

1 Ardab	198 Liter
1 Kaila	16,5 Liter
1 Rubu	8,25 Liter
1 Malwa (Mud)	4,125 Liter
1 Gadah	2,0625 Liter
½ Gadah	1,03125 Liter

Length Metrology

1 Zura'a	58 centimeter
1 Mile = 1760 Yarda	= 1609,34224 meter
1 Yarda	0,9144 meter
1 Feet	0,3048 Meter
1 Inch	25,4 Millimeter

Plane Metrology

1 Fadan	= 4200 Meter ²
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