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U. S. DEPARTMENT OF COMMERCE  
NATIONAL BUREAU OF STANDARDS  
WASHINGTON

Letter  
Circular  
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CLASSIFICATION AND TOLERANCES FOR COMMERCIAL STANDARD WEIGHTS THAT  
WILL BE ACCEPTED FOR CERTIFICATION BY THE NATIONAL BUREAU OF STANDARDS

Class A. Standards of this class are required to be of a single piece of metal, without adjusting cavity; of non-magnetic material, either practically non-oxidizable or plated with such metals as gold, platinum, rhodium, etc.; and otherwise suitable for such uses as primary standards of the States.

Class B. Standards of this class are required to be of essentially the same construction as those of Class A except that the surface protection may be of such metals as nickel, or of lacquer, and they may have an adjusting cavity closed by a driven plug. They are suitable for such purposes as secondary standards of the States, or as primary standards for local weights and measures officials and weight and scale makers.

Class C. Weights of this class include "test weights" such as are intended primarily for testing scales and weights used in ordinary commercial transactions, and weights used for certain commercial and industrial purposes demanding relatively superior construction and accuracy.

Tolerances

All tolerances for these classes are applicable both to new weights and to weights in service.



TABLE 1. AVOIRDUPOIS WEIGHTS OF SMALL DENOMINATION:

CLASSES A, B, & C.

Denomination Pounds	Tolerance	
	Classes A & B Grains	Class C Grains
50	2	10*
25	1.2	6
20	1.2	6
10	0.8	4
8	0.6	3
5	0.6	3
4	0.4	2
3	0.4	2
2	0.3	1.5
1	0.2	1.0
0.5	0.1	0.5
0.2	0.06	0.3
0.1	0.04	0.2
0.05	0.04	0.2
0.02	0.02	0.1
0.01	0.01	0.05
0.005	0.01	0.05
0.002	0.01	0.05
0.001	0.004	0.02
0.0005	0.002	0.01
0.0002	0.001	0.005
0.0001	0.001	0.005
0.00005	0.0005	0.0025
0.00002	0.0004	0.0020
0.00001	0.0003	0.0015
Ounces	Tol. in grains	Tol. in grains
8	0.1	0.5
5	0.1	0.5
4	0.1	0.5
2	0.06	0.3
1	0.04	0.2
1/2	0.04	0.2
1/4	0.02	0.1
1/8	0.01	0.05
1/16	0.01	0.05
1/32	0.01	0.05
1/64	0.004	0.02

Note: The tolerances on decimal fractions of an avoirdupois ounce are the same as those on the same decimal fraction of a troy ounce.

\*For other than cast iron weights.



TABLE 2. TROY WEIGHTS -- OUNCES TROY: CLASSES A, B, AND C

Denomination	Tolerance	
	Classes A & B	Class C
Ounces Troy	Grains	Grains
1000	2	10
500	2	10
400	1	5
300	1	5
200	1	5
100	0.6	3
50	0.4	2
40	0.3	1.5
30	0.3	1.5
20	0.2	1.0
10	0.2	1.0
5	0.1	0.5
4	0.1	0.5
3	0.08	0.4
2	0.06	0.3
1	0.04	0.2
0.5	0.04	0.2
0.4	0.03	0.15
0.3	0.02	0.10
0.2	0.02	0.10
0.1	0.01	0.05
0.05	0.006	0.03
0.04	0.005	0.025
0.03	0.005	0.025
0.02	0.004	0.020
0.01	0.003	0.015
0.005	0.002	0.010
0.004	0.0016	0.008
0.003	0.0014	0.007
0.002	0.0010	0.005
0.001	0.0010	0.005



TABLE 3. TROY WEIGHTS -- PENNYWEIGHTS: CLASSES A, B, AND C

Denomination Pennyweights	Tolerance	
	Classes A & B Grains	Class C Grains
10 000	2	10
5000	1	5
4000	1	5
3000	0.6	3
2000	0.6	3
1000	0.4	2
500	0.3	1.5
400	0.2	1.0
300	0.2	1.0
200	0.2	1.0
100	0.1	0.5
50	0.08	0.4
40	0.06	0.3
30	0.06	0.3
20	0.04	0.2
10	0.04	0.2
5	0.02	0.1
4	0.02	0.1
3	0.01	0.05
2	0.01	0.05
1	0.006	0.03





TABLE 4. APOTHECARIES' WEIGHTS: CLASSES A, B, & C

Denomination Ounces ap.	Tolerance	
	Classes A & B Grains	Class C Grains
12	0.2	1
10	0.2	1
8	0.1	0.5
6	0.1	0.5
5	0.1	0.5
4	0.1	0.5
3	0.08	0.4
2	0.06	0.3
1	0.04	0.2
Drams ap.		
6	0.04	0.2
5	0.04	0.2
4	0.04	0.2
3	0.02	0.1
2	0.02	0.1
1	0.01	0.05
Scruples		
2	0.01	0.05
1	0.006	0.03



TABLE 5. GRAIN WEIGHTS: CLASSES A, B, & C.

Denomination Grains	Tolerance	
	Classes A & B Grain	Class C Grain
5000	0.2	1
2000	0.1	0.5
1000	0.06	0.3
500	0.04	0.2
200	0.03	0.15
100	0.02	0.10
50	0.01	0.05
20	0.006	0.03
10	0.004	0.02
5	0.003	0.015
2	0.002	0.010
1	0.001	0.005
0.5	0.001	0.005
0.2	0.0005	0.0025
0.1	0.0004	0.0020
0.05	0.0003	0.0015
0.02	0.0003	0.0015
0.01	0.0003	0.0015
0.005	0.0002	
0.002	0.0002	
0.001	0.0002	



TABLE 6. METRIC WEIGHTS: CLASSES A, B, AND C.

Denomination	Tolerance	
	Classes A and B	Class C
Kilograms	Milligrams	Milligrams
20	120	600*
10	80	400
5	50	250
2	30	150
1	20	100
Grams		
500	14	70
200	8	40
100	6	30
(52)	(4)	
50	4	20
(26)	(2)	
20	2	10
(13)	(1.5)	
10	1.5	7
5	1.0	5
2	0.6	3
1	.4	2
Milligrams		
500	.3	1.5
200	.14	0.7
100	.10	.5
50	.07	.35
20	.04	.20
10	.03	.15
5	.02	.10
2	.01	.05
1	.01	.04

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\*For other than cast iron weights.



TABLE 7. CARAT WEIGHTS; CLASSES A, B, & C.

Denomination Carats	Tolerance	
	Classes A & B Milligrams	Class C Milligrams
2500	14	70
2000	12	60
1000	8	40
500	6	30
200	4	20
100	2	10
50	1.5	7
20	1.0	5
10	0.6	3
5	0.4	2
2	0.2	1
1	0.14	0.7
0.5	0.10	0.5
0.2	0.06	0.3
0.1	0.04	0.2
0.05	0.03	0.15
0.02	0.02	0.10
0.01	0.01	0.05

