DMS Notice

M – 08-02

July 8, 2008

Discard: Retain

TO WEIGHTS AND MEASURES OFFICIALS

SUBJECT: Selecting Weight Standards for Testing Class I and Class II Scales

Field officials have asked for guidance on selecting suitable weight standards for testing Class I and Class II scales. Examination Procedures Outline (EPO) No. 17 in the Device Enforcement Program Manual contains the outline for testing prescription and jeweler scales. It states, in Section 1.2.1, "CAUTION: If the device is marked Class I or II, Class F standards are not suitable", but currently gives no guidance on which standards are suitable.

We consider suitable standards to be those that can be used without correction and with tolerances less than 1/3 of the applicable device tolerance. (See California Code of Regulations (CCR), Section 4000, Fundamental Considerations, Appendix A, Paragraph 3.2)

Do not confuse ASTM weight class with scale class: There is no direct correlation. The weight class to use is dictated by scale division size and the test load applied. To identify the proper weight class for testing Class I or Class II scales, refer to Table 6 in CCR section 4000, 2.20. Scales T.N.3., and for a given test load determine the value of the tolerance you will be applying to the scale. Divide this tolerance value by three. Consult the attached weight tolerance table and, for the applied load, find the column with a value less than the value you calculated from the device tolerance. The heading of the column will give the applicable class of weight to use.

Example: 4100g x 0.1g class II scale.
For test loads of 1kg and 3kg the maintenance tolerance from Table 6 is 0.2g (200mg) for the 1kg and 0.1g for the 3kg (300mg). One third (1/3) of these values is 67mg and 100mg respectively. Thus, referring to the attached weight tolerance table, for the 1kg test load a class 5 weight with a tolerance of 50mg would be suitable. However for the 3kg test load you will need a class 4 weight with a tolerance of 60mg.

Be aware that higher precision weights must not be touched with bare hands. Handle them only with tongs or by wearing gloves. Disposable polyethylene gloves, such as those many kitchen servers wear, are suitable. Do not use medical latex gloves. Cotton gloves are acceptable, but only if polyethylene gloves are worn under them. Cotton gloves, by themselves, allow oils and perspiration to come through onto the weights. The purpose of the gloves is to maintain the integrity of the weight class. Finally, consider the effects of the environment (i.e. temperature and air currents), balance warm-up, and exercising the balance before testing.

If you have any questions, please contact Greg Boers, Principal State Metrologist at (916) 229-3022.

Sincerely,

Edmund E. Williams
Acting Director

Enclosure

cc: Kevin Masuhara, Director, County Liaison Office

Applied Load	ASTM WEIGHT CLASSES 0	1	2	3	4	5	6	7	Applied Load
	Weight Tolerances in milligrams								
5kg	6	12	25	50	100	250	500	1400	**5kg**
3kg	3.8	7.5	15	30	60	150	300	1000	**3kg**
2kg	2.5	5	10	20	40	100	200	750	**2kg**
1kg	1.3	2.5	5	10	20	50	100	470	**1kg**
500g	0.6	1.2	2.5	5	10	30	50	300	**500g**
300g	0.38	0.75	1.5	3	6	20	30	210	**300g**
200g	0.25	0.5	1	2	4	15	20	160	**200g**
100g	0.13	0.25	0.5	1	2	9	10	100	**100g**
50g	0.06	0.12	0.25	0.6	1.2	5.6	7	62	**50g**
30g	0.037	0.074	0.15	0.45	0.9	4	5	44	**30g**
20g	0.37	0.074	0.1	0.35	0.7	3	3	33	**20g**
10g	0.025	0.05	0.074	0.25	0.5	2	2	21	**10g**
5g	0.017	0.034	0.054	0.18	0.36	1.3	2	13	**5g**
3g	0.017	0.034	0.054	0.15	0.3	0.95	2	9.4	**3g**
2g	0.017	0.034	0.054	0.13	0.26	0.75	2	7	**2g**
1g	0.017	0.034	0.054	0.1	0.2	0.5	2	4.5	**1g**
500mg	0.005	0.01	0.025	0.08	0.16	0.38	1	3	**500mg**
300mg	0.005	0.01	0.025	0.07	0.14	0.3	1	2.2	**300mg**
200mg	0.005	0.01	0.025	0.06	0.12	0.26	1	1.8	**200mg**
100mg	0.005	0.01	0.025	0.05	0.1	0.2	1	1.2	**100mg**
50mg	0.005	0.01	0.014	0.042	0.085	0.16	0.5	0.88	**50mg**
30mg	0.005	0.01	0.014	0.038	0.075	0.14	0.5	0.68	**30mg**
20mg	0.005	0.01	0.014	0.035	0.07	0.12	0.5	0.56	**20mg**
10mg	0.005	0.01	0.014	0.03	0.6	0.1	0.5	0.4	**10mg**
5mg	0.005	0.01	0.014	0.028	0.055	0.08	0.2		**5mg**
3mg	0.005	0.01	0.014	0.026	0.052	0.07	0.2		**3mg**
2mg	0.005	0.01	0.014	0.025	0.05	0.06	0.2		**2mg**
1mg	0.005	0.01	0.014	0.025	0.05	0.05	0.1		**1mg**