

EQUIPMENT

1. METAL CONTAINERS: Of sufficient capacity for heating aggregates in oven?
 2. MARSHALL MOLDS: as per specification?
 3. COMPACTION HAMMER: (manual) ; **manufacturers certificate?**.....
 - (a) 7853±16g total mass?
 - (b) 4536±9g falling mass (including finger guard)
 - (c) 457±1.5 mm drop distance?
 - (d) flat foot with square edges?
 4. COMPACTION PEDESTAL: (manual)
 - (a) **Hardwood block dimensions , 203.2mm x 203.2mm x 457.2mm high?**
 - (b) **Cap plate – dimensions , 304.8mm x 304.8mm x 25mm thick?**
 - (c) Angle iron brackets?
 - (d) **Anchored to concrete block , 457.2mm x 457.2mm x 228.6mm?**
 - (e) **Cork and neoprene pads at each corner , 50.8mm x 50.8mm x 25.4mm?**
 - (f) Post plumb and cap level?
 - (g) **Pedestal restrained from lateral movement?**
 5. MECHANICAL COMPACTION:
 6. METAL TROUGH: round bottom **and of suitable size?**
 7. OVENS: of suitable capacity and capable of maintaining specified temperatures (for heating aggregates, molds and paving mixtures)
 8. HOT PLATE/OVEN: maintains temperature to within ±3°C in range of 100 to 180°C (for AC)?
 9. METAL GARDEN TROWEL: Slightly curved blade, 180 mm long, 75 mm wide at top and 50 mm wide at bottom?
 10. SPATULA: approximately 250 mm long and 25 mm wide **with rounded end?**
 11. MIXER: **Mechanical**, capable of producing a homogeneous mixture?
 13. KETTLE OR CONTAINER: capacity of about 4.5 L of asphalt cement?
 14. BALANCE: 5kg capacity, accurate to 0.1 g?
 15. METAL SCOOP: flat bottomed, for batching aggregates?
 16. THERMOMETER/TEMPERATURE PROBE: sensitive to ±1°C with a range of 10 to 204°C for Asphalt cement, mixes, aggregates?
 17. THERMOMETER/TEMPERATURE PROBE: sensitive to ±0.2°C for water bath?
 18. GLOVES: heat resistant?
 19. STOP WATCH OR TIMER: with an accuracy of ±0.1 second ?
 20. MIXING BOWL: for hand mixing , **when mechanical mixing is not used?**
 21. FLAT PANS: for drying and batching aggregates - approx. 350 x 250 x 60 mm?
 22. PAPER DISCS: for Marshall molds?
 23. METAL OR WOODEN BAR: for holding temperature probes/thermometers in place during cooling prior to compaction , **40mm depth into mix and 25mm from inside wall of mold?**
 24. BRIQUETTE EXTRUDER: not less than 100 mm dia. X 13 mm thick?
- [Fill in Y for Yes - N for No - NA for not applicable (**NOTE:** N or NA requires comment)]

COMMENTS: (write on separate page if necessary)

PROCEDURE

Sample Preparation - Laboratory:

- 1. Weigh card calculation: check basis mix design printout?
2. Single briquette batch:
(a) Aggregate pans side by side?
(b) Pass 2.36 mm flat pans used?
(c) Flat-bottomed scoop used?
3. Asphalt cement temperature supplied by the proprietor. Temperature maintained not longer than 1 hour prior to mixing?
4. Heat aggregate mix to not more than 28°C above mixing temperature (temperature supplied by the asphalt cement proprietor). Heating time is a minimum of 16 hours?
5. Heat the metal trough and Marshall molds to 135°C ± 5°C.
6. Preheat mixing bowl along with aggregates?
7. Preheat metal trowel and spatula on hot plate or mold oven?
8. Hot aggregate placed in mixing bowl and weigh:
(a) If weight not within ±1 g of original weight add preheated pass 2.36 mm (from 1st fine aggregate if more than one is used)?
9. Dry mix for 15 seconds?
10. Form crater and add AC - mix for 45 seconds or maximum of 1.5 minutes?
11. Report any mixing problems?
12. Scrape mix off of paddle and blade with heated spatula?
13. Spread total mix into hot trough using back and forth motion?

Sample Preparation - Field Sample:

- 1. Hot field sample >100°C cooled to room temperature?
2. Warm the entire sample until it can be reduced in size by quartering/splitting in oven maintained at 110°C (microwave permitted for this step) ?
3. Obtain from the field sample (by splitting/quartering) sufficient material, normally 4kg, in order to prepare 3 Marshall specimens?
4. Optional Procedure for single size batches: 4kg batch further reduced in size in order to produce three single batches that are uniform in composition and of proper height?
5. Spread mixture in a pan and place in oven (no microwave) and reheat to not more than 5°C above the compaction temperature?
6. Spread total mix into hot trough using back and forth motion?

Compaction Sample Preparation (laboratory and field samples):

- 1. Place paper discs in bottom of mold?
2. Place entire batch in mold (sufficient to give a compacted briquette 63.5 ± 2.5 mm in height)?
(a) Bottom of trowel in contact with bottom of trough - not removed in layers?
3. Rod mixture with spatula:
(a) 15 times around side with blade flat against the mold?
(b) 10 times in the center part of the mold with spatula in fixed direction?
4. Shape top of mix in the form of a slightly rounded shape?

PROCEDURE: (continued)

- 5. Place **wooden or metal** bar on top of the collar? _____
 (a) place the thermometers or probes to depth of approximately 40 mm? _____
 (b) when cooling to compaction temperature, mold with mixture on wooden board? _____
- 6. When average temperature is within the required temperature range remove and place mold on compaction block? _____
- 7. Paper disc placed on top of the mix? _____

Compaction (manual)

- 1. Foot of hand hammer preheated to 135±5 °C? _____
- 2. Apply 75 blows per side at rate of 60±5 blows per minute? _____
- 3. Handle of compaction hammer not supported? _____
- 4. Remove base plate and collar and paper discs and cool to approximately 40°C (fan allowed)?

Compaction (mechanical)

- 1. Mechanical equivalency to 75 blows manual established? _____
- 2. Hammer foot preheated to 135±5 °C? _____
- 3. Compact briquette and cool to approximately 40°C (fan allowed)? _____
- 4. Check foot periodically for rounded edges? _____

Extrusion

- 1. Briquette extruded using extrusion jack or other compression device? _____
- 2. Briquette placed on smooth level surface until ready for testing? _____
- 3. Briquette left for minimum 1 h before testing (12 h before stability testing)? _____

[Fill in Y for Yes - N for No - NA for not applicable (**NOTE:** N or NA requires comment)]

COMMENTS:

Name of Laboratory: _____ Date: _____
 Inspector: _____ Inspection No: _____