

**TBA ECP**  
**STAINLESS STEEL MASTERBATCH**  
**FOR EMI SHIELDING PLASTICS**

**MOULDING HINTS**

1. Typically you will need a 1% by VOLUME loading of the fibre to obtain adequate conductivity to provide effective EMI shielding performance. Static dissipation applications use lower loading levels, typically at 0.5% by volume. Moulding trials will optimise these loading level.
2. For example, to get 1% volume in flame retarded ABS you will need to mix 0.880 Kg of grain with 9.12 Kg of ABS pellets to give 10 Kg of blend ie, AN 8.8% BY WEIGHT GRAIN CONTENT. In polypropylene the loading level would be optimised at 10% by weight due to the lower matrix density.
3. Only mix what you need progressively, in batches, to minimise wasteful use of masterbatch.
4. **DO NOT USE A MAGNETIC SEPARATOR IN THE MOULDING MACHINE AND HOPPER, THE GRAINS WILL SEPARATE AND STICK TO THE MAGNET!!**
5. Ensure that the grains are well mixed in the bulk of the matrix pellets by hand, and feed to the machine in the normal manner.
6. Your aim is to produce uniform dispersion of the fibres in the moulding, whilst minimising fibre breakdown by overworking the filaments.
7. We propose you adopt the following machine settings:-
  - Choose a machine large enough to give adequate mixing of the masterbatch in the barrel of the machine. Typically a machine which holds a minimum of approximately 3 injection shots of material within the barrel will give sufficient dispersion during normal cycle conditions.
  - Screw speed: 50 - 100 rpm
  - Back pressure: 2.5 - 5.0 Kg/cm sq
  - Injection pressure: choose the minimum level to achieve mould filling.
8. On starting to mould you may notice clumps of undispersed fibres in the moulding.
  - **DO NOT BE ALARMED AND BE PATIENT. IT WILL TAKE SEVERAL SHOTS TO OBTAIN CONSISTENCY.**
9. Steady state is fastest achieved by actually moulding. Pre purging does not speed up the attainment of the steady state - this is because the back-pressure set up on moulding has the major effect on dispersion.
10. If dispersion is poor ensure that dispersion is increased by slowing the screw speed and increasing back pressure to slow down the rate at which the screw returns, thus providing longer mixing time with respect to the total cycle time.