

# EXTRUSION PROCESS GUIDE FOR BIODUR

Last Updated On: 06-Apr-2022

Mynusco BioDur material, designed for extrusion applications has moderate to low melt flow index. The material can be processed on conventional extrusion equipment with little extra care. Material density, its flow rate and HDT should be considered while optimising the process parameters.

The material is stable in the molten state if the drying procedures are followed. The material is sensitive to moisture and high temperatures, and hence additional care should be taken while handling and processing.

Processing parameters may vary for different equipments (brands, size, age of machine, etc.). In order to control the final product quality, it is recommended to adjust and balance the processing parameters with initial trials using the processing parameters and approach provided here as a guideline.

## 1. PREPERATION

|                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Storage</b>              | Keep the material tightly closed in a dry and cool place. Keep away from heat and sources of ignition. Avoid exposure to moisture, dampness.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Drying</b>               | Inline drying is recommended for a minimum of 4 to 8 hours at 90° C - 100° C (195° F - 212° F), depending on the efficiency of the drying equipment. The material should not be exposed to atmospheric conditions after drying. Keep the package sealed until ready to use. In order to dry the material, it is recommended to use heated hopper attached to the extrusion machine or a separate de-humidifier with automatic feeding mechanism.                                                                                                                                                                                                                                                                        |
| <b>Startup Procedure</b>    | <p>The material is not compatible with a wide variety of other resins, and following purging sequences should be followed:</p> <ol style="list-style-type: none"><li>1. Clean barrel and bring temperatures to steady state (not exceeding 180° C / 355° F) with PP or PE. Purge the material from the barrel.</li><li>2. Adjust temperatures to desired values as given in the next section.</li><li>3. Introduce our material into the barrel at the operating conditions used in step two. DO NOT INTRODUCE THE MATERIAL UNTIL THE BARREL TEMPERATURES REACH DESIRED LEVEL.</li><li>4. It may be necessary to introducing our material gradually while starting the process with PE/PP material initially.</li></ol> |
| <b>MSDS &amp; Datasheet</b> | Read & understand the MSDS & datasheet provided with the material.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

## 2. EXTRUSION PROCESS PARAMETERS

|                    |                  |                  |
|--------------------|------------------|------------------|
| Hopper Temperature | 90° C to 100° C  | 195° F to 212° F |
| Zone 1             | 90° C to 100° C  | 195° F to 212° F |
| Zone 2             | 125° C to 155° C | 290° F to 310° F |
| Zone 3             | 155° C to 165° C | 310° F to 330° F |
| Zone 4             | 165° C to 175° C | 330° F to 347° F |
| Screw Speed        | 50-100 rpm       |                  |

## 3. POST PROCESSING

|                         |                                                                                                                                                     |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Storage</b>          | Keep the unused material tightly closed in a dry and cool place. Keep away from heat and sources of ignition. Avoid exposure to moisture, dampness. |
| <b>Shutdown Process</b> | Clean barrel and bring temperatures to steady state (not exceeding 180° C) with general purpose PP or PE.                                           |

## 4. ADDITIONAL INFORMATION

This processing guide is suitable for all extrusion grades of BioDur material. Changes to the formulation and percentage of key ingredients may change for different products grades and hence the processing parameters may need to be adjusted accordingly.

This publication provides information and guidelines for safe handling and processing of Mynusco materials and is based on currently available experience and knowledge. It is not designed as a comprehensive product Process Guide, nor as a guide to application possibilities of our materials. Users should follow all applicable local regulations governing Health and Safety at work, and are requested to pass this publication on to all relevant employees and customers. The information in this extrusion Process Guide is provided in good faith and believed to be accurate. WE MAKE NO WARRANTY, EXPRESS OR IMPLIED, REGARDING THE INFORMATION CONTAINED HEREIN OR ITS PRODUCTS, INCLUDING BUT NOT LIMITED TO ANY WARRANTY AS TO ACCURACY OR COMPLETENESS OF INFORMATION, OR ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.