Molding 360

THERMOPLATSTIC PROCESSING

Introduction

TYPES OF PLASTIC

Crystalline: shrinkage- melting- molecular structure

Amorphous : shrinkage –melting- molecular structure

PLASTIC BEHAVIOUR-

Behavior vs. molecular length

Injection speed effects – orientation- viscosity

Degradation and effects on the part.

Plastic terms- creep , notch sensitivity etc.

SCREW AND BARREL

Sections of the screw

How plastic is melted in the barrel

Barrel setpoints

Determining melt temp

Plastic pressure

Amplification ratios and its uses

Back pressure

Residence time and factors that influence residence time

MACHINE CONTROLS

Safety

Clamp screen- setting mold protect pressure and high pressure positions

Setting die height

INJECTION

Setting velocities and positions

How to set the proper injection pressure

How to interpret the injection pressure curve and determine if the injection is set correctly

How to set the hold pressures using one or all of the hold pressure steps

Using point to point hold pressure profiles

Using slope 1,2,3 pressure profiles

Using point to point on injection

Effects of slope 1,2,3 on the machine response

Fill impulse transfer-

How to activate F.I.T feature

Uses for F.I.T.

DST feature

How to use auto viscosity control- DST fill

Rapid Slow Down feature-

How to set RSD

Uses for RSD

Laminar Flow

Explanation of laminar flow feature

How to set laminar flow feature

Uses for laminar flow

Recovery profile-

Setting screw recovery

Interpreting the back pressure recovery curve

PRODUCTION COUNT SCREEN

Setting the production counters

Different methods of setting the counters

Production graph

Startup feature

MONITORING SCREENS

Setting the monitoring screen for SPC

Interpreting the monitoring trends.

DIAGNOTICS SCREENS

Maintenance screen

Checking input and output signals using the checker screen

OPTIONS AND SUPPORT SCREENS

Lap circuit

Moldlyzer feature

MEMORY SCREEN

How to store and load processes to memory

HELP SCREENS

Explanation of the help screens

PART SURFACE DEFECTS

Sink marks- causes and recommendations

Color streaks- causes and recommendations

Air hooks- causes and recommendations

Weld lines- causes and recommendations

Jetting- causes and recommendations

Burn mark causes and recommendations

Grooves causes and recommendations

Gate blush causes and recommendations

Glass fiber streaks – causes and recommendations

Gloss differences – causes and recommendations

Moisture -causes and recommendations

Short shots – causes and recommendations

Entrapped air – causes and recommendations

Stress cracking- causes and recommendations

Cold slugs – causes and recommendations

SETTING UP A PROFESSIONAL PROCESS

How to set up the process using the latest techniques in injection molding and why.

FORMULA’S FOR INJECTION MOLDING

Some useful formulas to help size the mold and machine- overview of gates, runners, vents.

HANDS ON SESSION

Students set up the mold from scratch using the latest technique and activate machine monitoring spc features.

Interpret the graphics screen

Activate laminar

Activate F.I.T.

Thermoplastic processing – Data decisions.

Calculating shot size

Clamp tonnage

Graphing injection viscosity

Cavity Pressure

Cooling Time

Plasticizing rate

Residence Time

Injection Velocity- Profiling.

Chekring repeatability

Gate freeze

Pressure segmentation

Runner and gate recommendations

Vent recommendations

Moving the mold to a new press using scientific molding data.