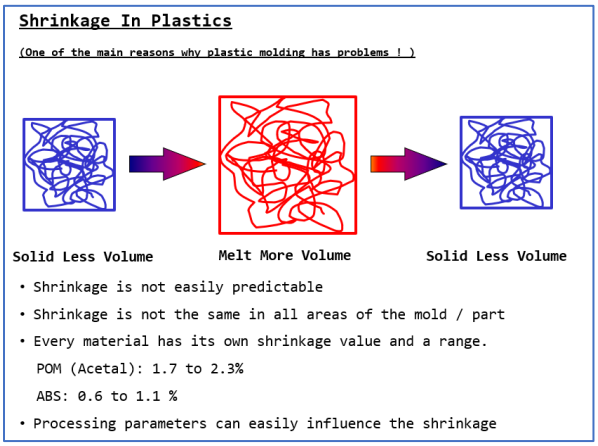
Answer Sheet: Introduction to Scientific Molding and Scientific Processing

1. One of the main reasons for part quality inconsistencies is?
    a. Shrinkage of the material not being easily predictable and consistent
    b. Variation in Material
    c. Variation in Machines
    d. Part to part, shot to shot and run to run inconsistencies

    Answer:



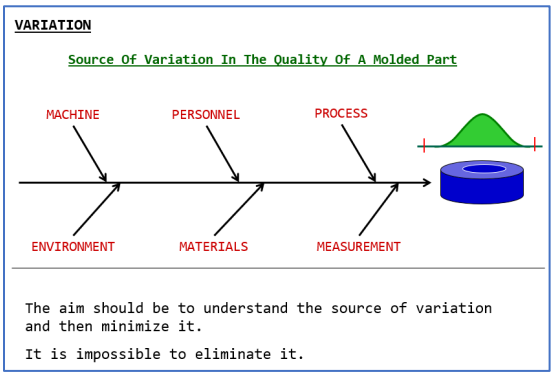
2. Which one of these is one of the types of consistencies a molder look for?
    a. Customer to customer
    b. Run to Run
    c. Operator to operator
    d. None of the above

    Answer:

    The molder is looking for Cavity to Cavity, Shot to Shot and Run to Run consistency.

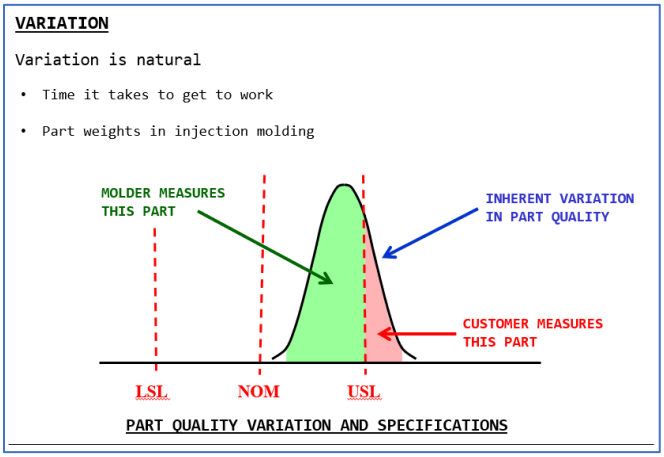
3. Which of the statements is true?
    a. Variation in molded products can be eliminated
    b. Variation from shot to shot can be eliminated but not run to run
    c. Variation from cavity to cavity is not possible.
    d. Variation cannot to eliminated

    Answer:



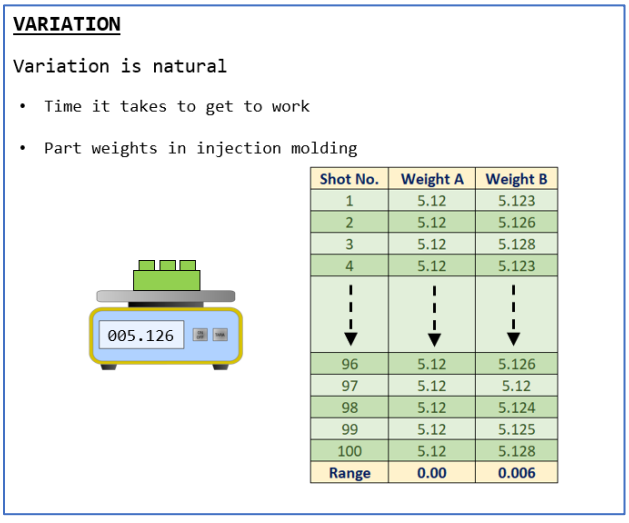
4. Process Capability is a measure of
    a. How robust the process is
    b. The ability to mold parts to the desired specifications
    c. The number of acceptable parts in a box
    d. All of the above

Answer:



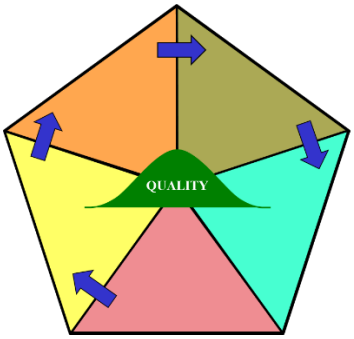
5. The 3 types of consistencies required in Injection Molding are
    a. Cavity to Cavity
    b. Shot to Shot
    c. Run to Run
    d. All of the above.
6. 100 parts were molded and their lengths were measured. The lengths were all 5.12 inches. Is the statement, 'There is no variation in the dimensions.' True or False
(add radio buttons)
    a. True (If they select this the response is 'This is the wrong answer. See Answers' page)
    b. False (If they select this the response is 'This is the correct answer)

Answer:



Shot No.	Weight A	Weight B
1	5.12	5.123
2	5.12	5.126
3	5.12	5.128
4	5.12	5.123
96	5.12	5.126
97	5.12	5.12
98	5.12	5.124
99	5.12	5.125
100	5.12	5.128
Range	**0.00**	**0.006**

7. To have a successful molding project, pick the order in which the 5 elements must be considered. (Users will pick and place the text in the triangles of different colors)



MOLD DESIGN & BUILD

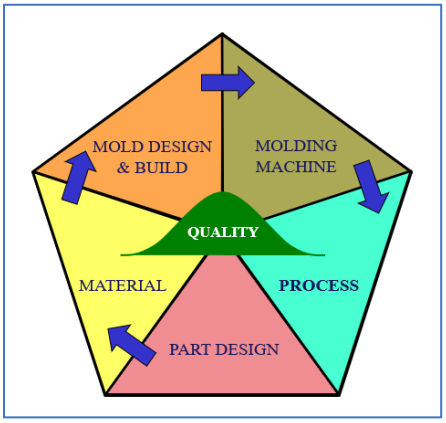
MOLDING MACHINE

PART DESIGN

PROCESS

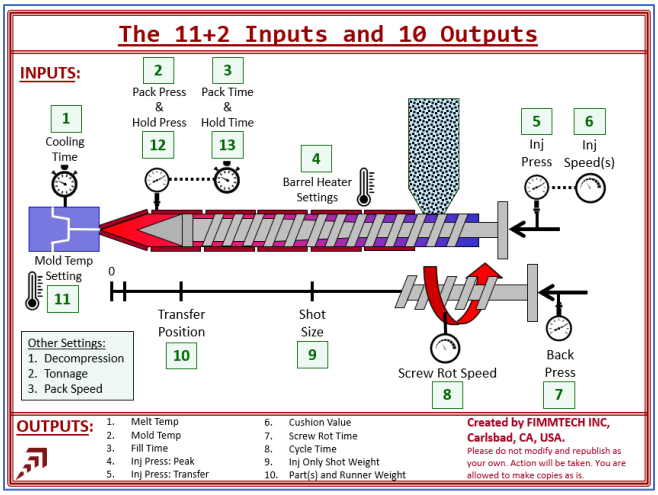
MATERIAL

Answer:



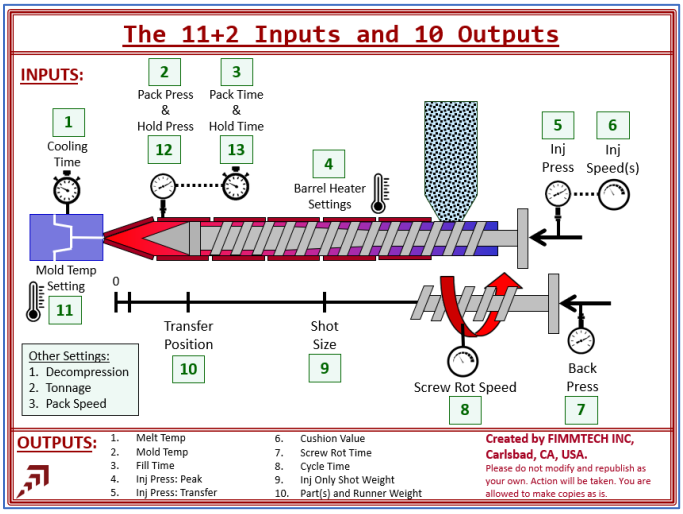
8. How many inputs on the machine can affect the part quality?
   a. 4
   b. Between 6 and 10
   c. 13
   d. More than 20

Answer:



9. How many main outputs should one consider from an injection molding process?
    a. 6
    b. 8
    c. 10
    d. 12

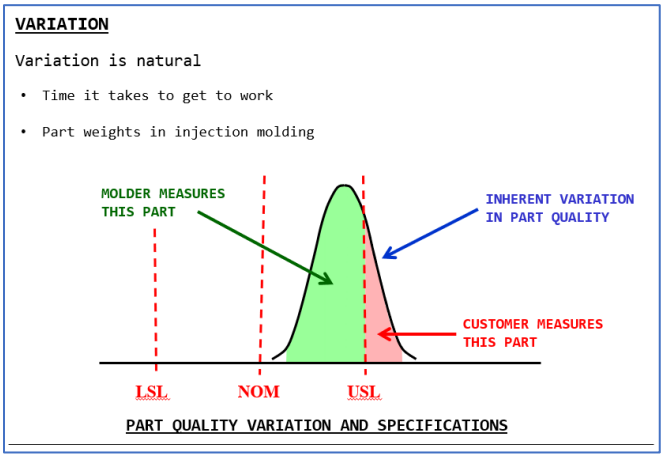
Answer:



10. True of false? 'If we measure 2 parts out of a 10,000 parts and the parts are acceptable, then we can safely say that all the 10,000 parts are acceptable'
    a. True
    b. False

Answer:

There will be variation and so we will need a larger sample to understand the variation.



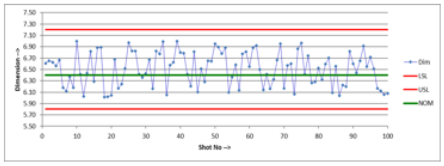
11. A process that runs in 'cruise control mode'
    a. Does not exist
    b. Is almost impossible to develop
    c. Always molds parts within the specifications with no process changes required
    d. Will need to be tweaked during every run and throughout the run

Answer:

Cruise Control:

Wide Freeway! Wide Process Window to absorb any natural variation

Carefree Driving!



Cruise Control Process!!

A Molding Process Must Be:

1. Robust
2. Repeatable
3. Reproducible

AKA the 3Rs.

12. One of the main culprits for inconsistent processes is
    a. The personnel who are constantly changing the process.
    b. Molding shop temperature is always changing.
    c. Machine maintenance was not performed.
    d. Shrinkage in plastics is not constant and not easily predictable.