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CHARPY IMPACT MACHINE VERIFICATION PROGRAM

This questionnaire will assist you in performing a successful Charpy impact verification test. The lot number, serial number, and energy results of the tested specimens must be provided in order to obtain certified values. For more details, please consult the current ASTM E23 standard. This information is necessary to evaluate the condition of your machine. A fillable, savable, and printable PDF version of this questionnaire is available at http://www.nist.gov/srm/cq.cfm.

Location of Machine

Company _____

Address _____

_____

City _____ State/ Province _____

Country _____ Zip/ Postal Code _____

Email Address (Required for receipt of a verification report)

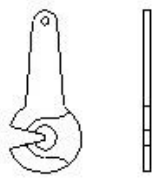
_____

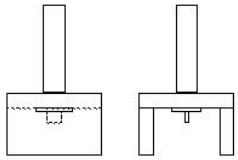
Test Machine

(*Select appropriate responses where indicated*)

1. Machine Manufacturer _____ Serial Number _____
2. Verification Test Energy Units _____
3. If the machine is adjustable, what capacity was used for this test? _____
4. What is the maximum energy capacity of the machine? _____
5. What is the typical range in absorbed energy of the steels tested at your facility? _____
6. Is your machine mounted according to the requirements of the ASTM Standard E23 and the machine manufacturer's recommendations? _____
7. Is your machine equipped with a carbide striker and/or anvils? _____
8. Are your anvils and/or striker newly installed? _____
9. Check the appropriate pendulum design below.

C-type ☐ U-type ☐ Other ☐





Please Sketch

10. If side supports or shrouds are used, do they meet the requirements of ASTM E23? _____
11. Do the dimensions of your anvil and striker meet the requirements of ASTM E23? _____
12. When was your machine last verified by NIST? Date: _____
13. Is your machine equipped with a direct reading or a non-compensated scale? _____

Pre-Testing Operations

(*Select appropriate responses where indicated*)

1. Does the striker pass through the center of the anvils within 0.40 mm (0.016 in)? _____
2. With the pendulum in the free hanging position, engage the energy indicator. Does the indicator read within 0.2 % of the maximum energy range being used? _____
3. What is the friction/windage loss of your machine (see ASTM E23)? _____
4. With the specimen removed from your machine and the pendulum released from its latched position, what is the dial reading after one swing? _____

   This reading should be zero. If this reading is not zero and your machine is equipped with a compensated scale, please adjust the dial to read zero. If your machine is equipped with a non-compensated scale, please compensate the energy values for windage and friction by subtracting the windage and friction values.

Calculating the Lower Limit of the Usable Range for Your Machine

(*Do Not Produce Data Below the Lower Limit*)

1. If your machine is equipped with a digital readout, what is the resolution? _____
2. If your machine is equipped with an analog scale:
   a. What is the energy value between two adjacent marks on the scale at 15 J (11 ft·lbf)? _____
   b. What is the smallest discernible energy value readable between these marks? (*This is normally ½ to ¼ of the difference between two adjacent marks on the scale.*) _____
3. Lower usable limit of your machine: Multiply the above finding by 25. _____

   Example 1: (Digital Readout)

   Machine has a capacity of 407 J and is equipped with a digital readout. The resolution of the readout is 0.14 J at 15 J. The lower limit of your machine is 25 times 0.14 J or 3.5 J.

   Example 2: (Analog Scale)

   Machine has a capacity of 407 J and is equipped with an analog scale. In the case where the energy divisions between the marks at 15 J are 0.5 J, you should be able to estimate to at least 0.25 J. This is your resolution. Multiply by 25. The lower limit of your machine is 6.25 J.

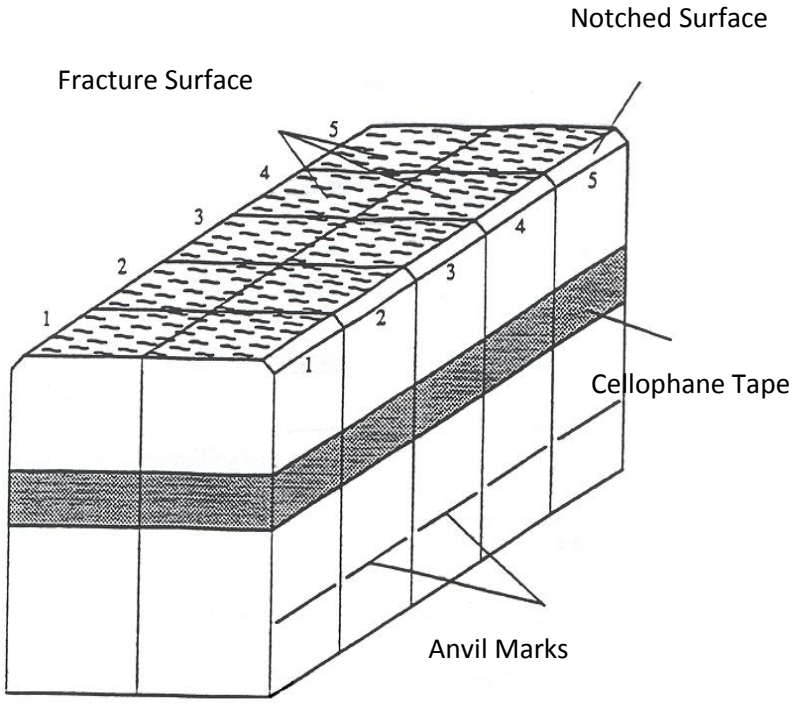
Testing Requirements

1. Test temperature for SRM 2092 low-energy and SRM 2096 high-energy level specimens is –40 °C ± 1 °C (–40 °F ± 2 °F). NIST recommends the specimens be held at temperature for 10 minutes minimum and impacted within 5 seconds after removing them from the cooling medium.

2. Test temperature for SRM 2098 super-high energy level specimens is 21 °C ± 1 °C (70 °F ± 2 °F).

SHIPPING & WRAPPING INSTRUCTIONS

To expedite the evaluation of your machine, please secure the 5 broken specimens (10 halves) from a particular energy series as one unit, with **clear cellophane tape** according to the following instructions. See diagram below.



1. Keep broken halves correctly paired (back to back) with the fracture surfaces facing upward and notched surfaces facing outward.

2. The completed questionnaire and the fractured specimens must be shipped to:

   NIST Charpy Program Coordinator
   Mail Code 647
   325 Broadway
   Boulder, CO 80305-3337

   Phone: (303) 497-3351, Fax: (303) 497-5939, e-mail: charpy@boulder.nist.gov

3. The mailing label provided with each SRM must be used to expedite shipping and, for overseas shipments, clearance by U.S. Customs.

4. Attach the label so that it is clearly displayed on the OUTSIDE of the package.

5. Customers returning specimens from outside the U.S. should include the following statement on the U.S. Customs Declaration:

   Contents include U.S. manufactured steel test bars being returned to the U.S. for evaluation and are valued at less than 10 U.S. dollars.

Verification Test Results

INDICATE ENERGY UNITS
(Select appropriate unit below)

◯ **Joules** ◯ **ft·lbf**

SRM 2092 Low-Energy Lot # _____		**SRM 2096 High-Energy** Lot # _____		**SRM 2098 Super High-Energy** Lot # _____	
Specimen Number	**Value**	**Specimen Number**	**Value**	**Specimen Number**	**Value**
Average Value		**Average Value**		**Average Value**	

Date of Test _____
(Month/Day/Year)

Company Representative

_____ Telephone _____
Company Representative (PRINT)

_____ Email _____
Company Representative (SIGNATURE)

Third Party Representative

_____ Email _____
Third party (company name)

Naming a third party here gives your permission to release the verification data (NIST verification report) to the third party. If an email address is provided, the third party will be copied on the NIST verification report automatically.