You can see results (Peak Force, Break Force, Break Energy and Total Energy) in your reports. You should calculate required force and energy values shown in Table.1 using the results you are given in the reports. Firstly, you should notice that you have two curves in the graphics of your reports. One of them is representing the Force-Time and force values can be seen on the left side of y axis. On the other hand, you have Absorbed Energy-Time curve in graphics as well. Absorbed Energy values can be seen on the right side of y axis. Secondly, you can see that there are some differences between the names of parameters given in Table.1 and the reports. You can see below explanations in order not to make you confused about the parameters:

Crack Initiation Force: Break Force (shown with blue)

Crack Initiation Energy: Break Energy (shown with blue)

Total Fracture Energy: Total Energy (shown with yellow)

Also, there are some formulas you should use for your calculations:

Crack Propagation Energy= Total Fracture Energy-Crack Initiation Energy=Total Energy-Break Energy

Charpy Impact Strength=$ \frac{W}{b\_{N}h}\*10^{3}$

where

W:Absorbed energy (You should use corresponding energy type depending on Charpy Impact Strength Type)

h:thickness of the specimen

bN:net width of the specimen (notch length should be subtracted from width)

For all sections and groups, width, thickness and notch lengths should be taken as stated below:

Width=9.8 mm

Thickness=4.8 mm

Notch length=1 mm

All parameters value and calculated results should be shown in Table.1.

Table 1. Test parameters and test results of instrumented Charpy impact tests

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Parameters** | **Samples** | **Average**  | **Standard Deviation** | **SEM** |
| **1** | **2** | **3** |
| Sample Dimensions (B x t) (mm) |   |   |   |   |   |  |
| Crack Initiation Force (N) |   |   |   |   |   |  |
| Impact Speed (m/sec) |   |   |   |   |   |  |
| Crack Initiation Energy (Joule) |   |   |   |   |   |  |
| Crack Propagation Energy (Joule) |   |   |   |   |   |  |
| Total Fracture Energy (Joule) |   |   |   |   |   |  |
| Notch Length (mm) |   |   |   |   |   |  |
| Crack Initiation Charpy Impact Strength **Cv\_CI** (Joule/m2) |  |  |  |  |  |  |
| Crack Propagation Charpy Impact Strength **Cv\_CP** (Joule/m2) |  |  |  |  |  |  |
| Total Charpy Impact Strength **Cv\_TF** (Joule/m2) |   |   |   |   |   |  |