Response to reviewer comments

Comment: This paper makes no attempt to explain the mechanistic relationships between the variables (eg. temperature vs hardness) and just describes the process that was followed and what the results were.
Response: Brief information on sintering mechanism had been included. Only two temperatures were considered for the study and the effect of temperature on hardness could be linked. It should be noted that density has a direct effect on hardness.
Action taken: Sintering of crystalline materials can occurred by several mechanisms such as surface diffusion, lattice diffusion, grain boundary diffusion and dislocation motion. All these processes are temperature dependent. An increase in temperature would cause the diffusion of atoms and this would results in necking as well as shrinkage (Densification) [13]. The action taken can be found in page 4 line 1-4 of the manuscript.

Comment: The error on the hardness measurements are surprisingly small considering the heterogeneous microstructure.
Response: The small error observed in the microhardness value could be attributed to homogeneous distribution of the TiC phase in stainless steel matrix.
Action taken: No action was taking.

Comment: The goal of the study was to improve the strength of the material and stop the formation of inter-metallic phases at temperatures > 250ºC. It is not clear how this would be achieved with the addition of TiC. The author should include a brief statement regarding this. This paper did not investigate whether the TiC additions improved these two problems of this material but rather focused on sintering quality.
It is suggested that the author include an image showing the bonding quality between the TiC and the steel matrix.
Response: 1. Brief statement has been included. 2.Hardness is one of the properties that determine strength of a material that is while it was measure in relation with the processing parameters. 3. Fig 4 shows the bonding quality between the TiC and the steel matrix. Aspect show incomplete sintering between the matric and the TiC.
Action taken: TiC particles are thermodynamically stable in an iron alloy matrix at the low sintering temperatures, with practically negligible (0.5–1%) solubility [9]. This limited solubility might have resulted in the formation of the (Fe, Cr)-rich precipitates at the interface which contributed to the improved strength of the component [9]. The action taken can be found in page 2, paragraph 2 line 8-11 of the manuscript.

Comment: The SEM images should preferably be cropped to remove the data bar. Invariably the text on the data bar is too small to read and adds nothing to the image. A scale bar with legible text should be included on the image itself.
Response: The SEM image has been crop and scale bar with legible text has been added
Action taken: It has been addressed

Comment: The hidden variable that is not discussed is the effect that SPS will have on the material properties. It would be preferable to include measurements taken from a steel processed using the normal manufacturing route.
Response: One definite advantage of SPS to the material properties is the availability of high-heating rates in limiting grain growth. When the dominant densification mechanism such as grain boundary diffusion has higher activation energy than the coarsening mechanism

like surface diffusion, reaching rapidly high-sintering temperature can be beneficial to enhance densification rate while retarding microstructure coarsening.

Action taken: No action was taking because the advantages of SPS over other manufacturing route has been summarised in page 2, second to the last paragraph of this paper.