

Power Loss in Micro Cracked Polycrystalline Silicon-based Solar Cells

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AIM: The impact of solar cells micro cracks is assessed through the analysis of 3680 polycrystalline silicon solar cells using electron microscopy

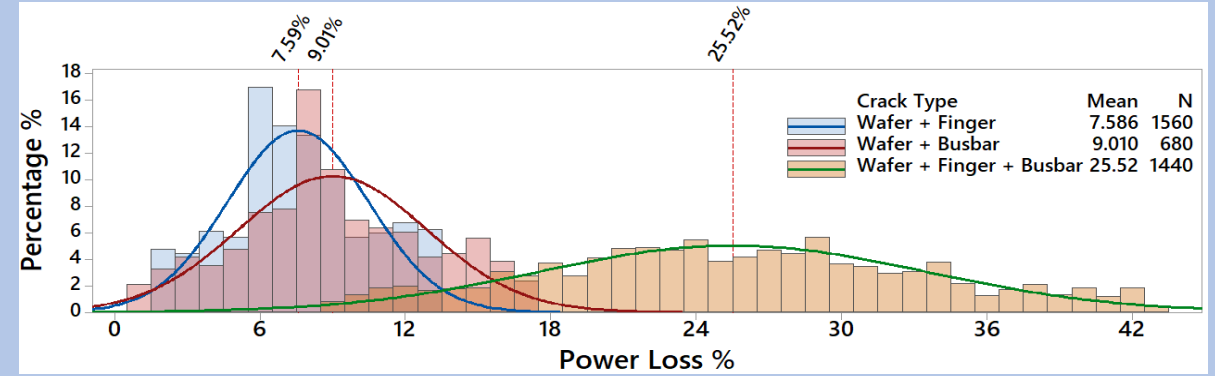
RESULTS

The percentage of occurrence of the micro cracks:

Type (a), 42.4%

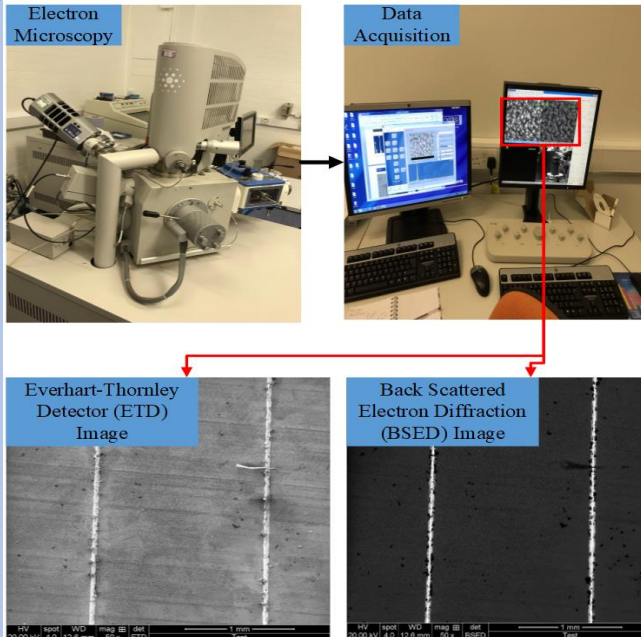
Type (b), 18.5%

Type (c), 39.5%



The average power loss for type (a) is equal to 7.59%; while it is equal to 9.01% and 25.25% for type (b) and (c), respectively.

METHODOLOGY



Examine solar cells using electron microscopy. The micro cracks are distributed as follows:

Type (a): Wafer + Fingers

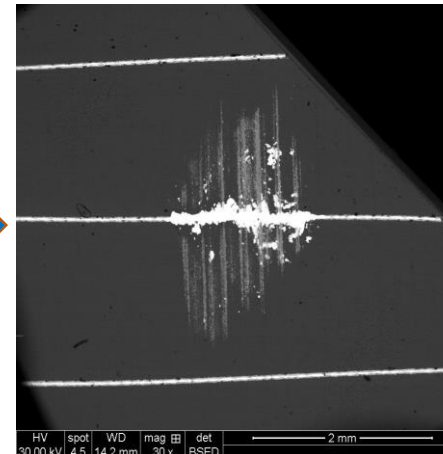
Type (b): Wafer + Busbar

Type (c): Wafer + Fingers + Busbar

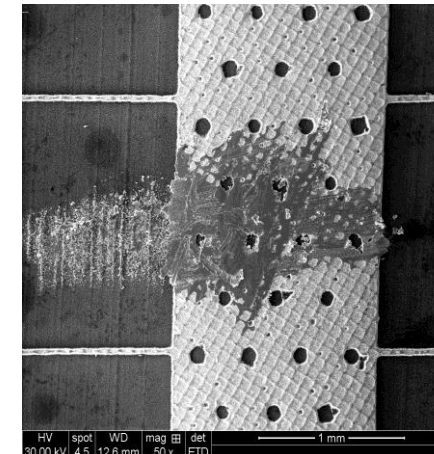
CONCLUSION

A remarkable observation has been found that the output power loss of micro cracked solar cells 'on average' could range from 0.9% to 25%. In future, it is anticipated to investigate the mitigation of micro cracks in solar cells.

Type (a)



Type (b)



Type (c)

