



Supporting Information

for

Development of an anti-pollution coating process technology for the application of an on-site PV module

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Beilstein J. Nanotechnol. **2019**, *10*, 332–336. [doi:10.3762/bjnano.10.32](https://doi.org/10.3762/bjnano.10.32)

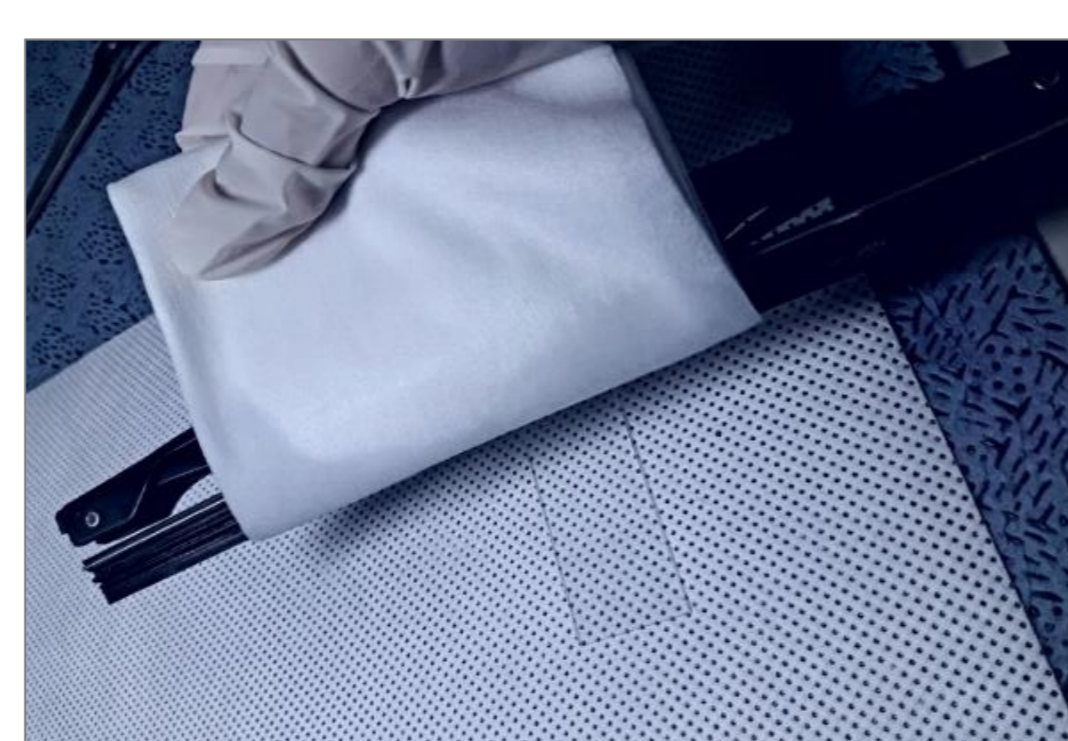
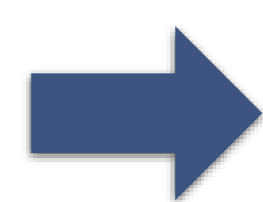
Overview

Development of Anti-pollution Coating Process Technology for the Application of Onsite PV Module

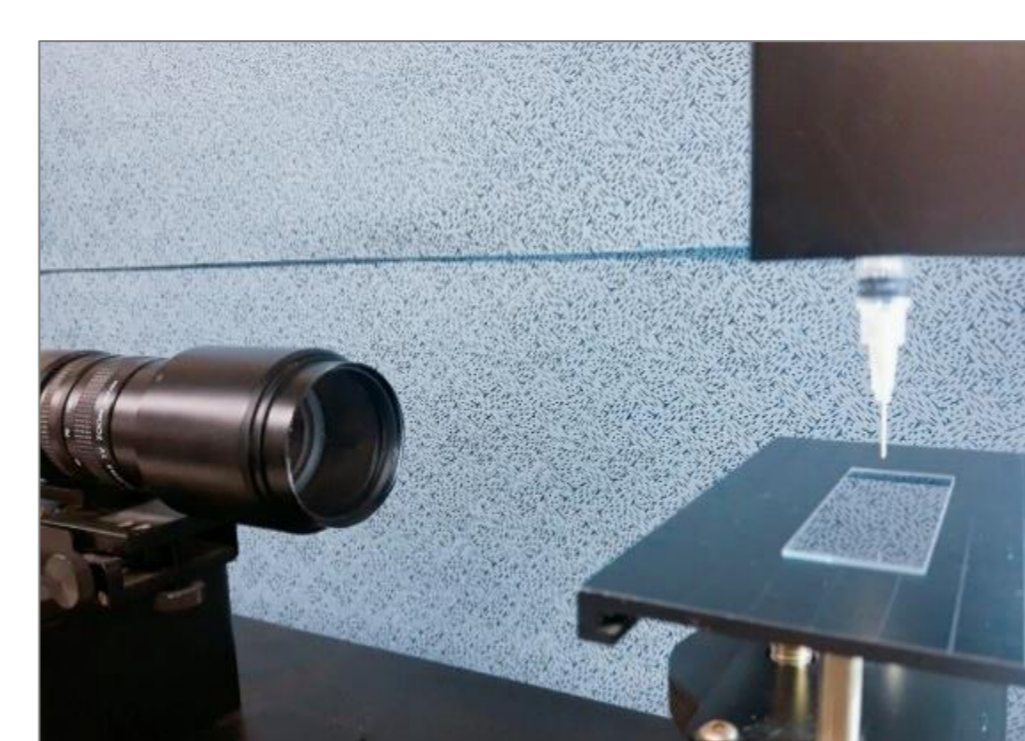
Experiment



Cleaning Glass



Brush Coating on Glass

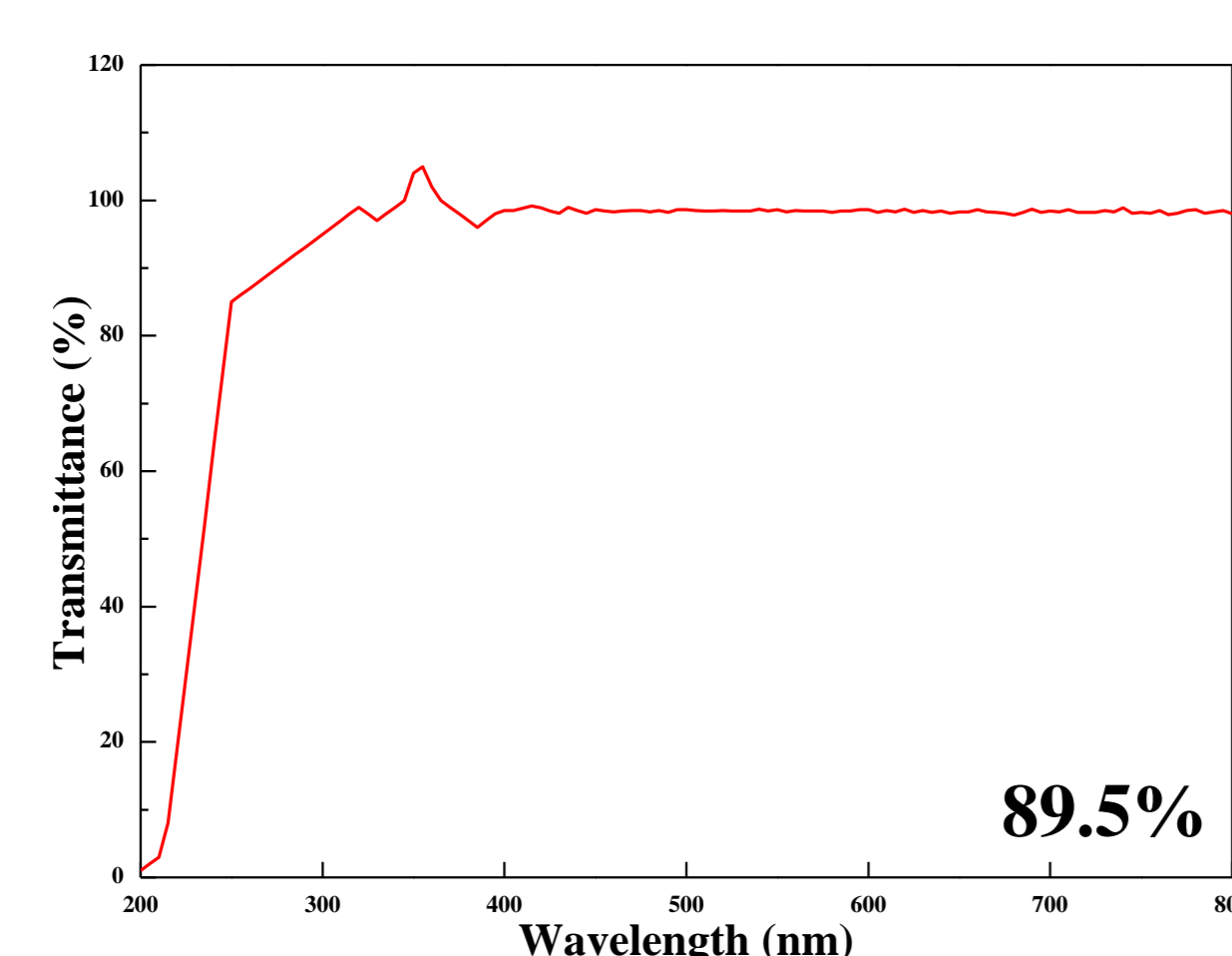


Properties analysis

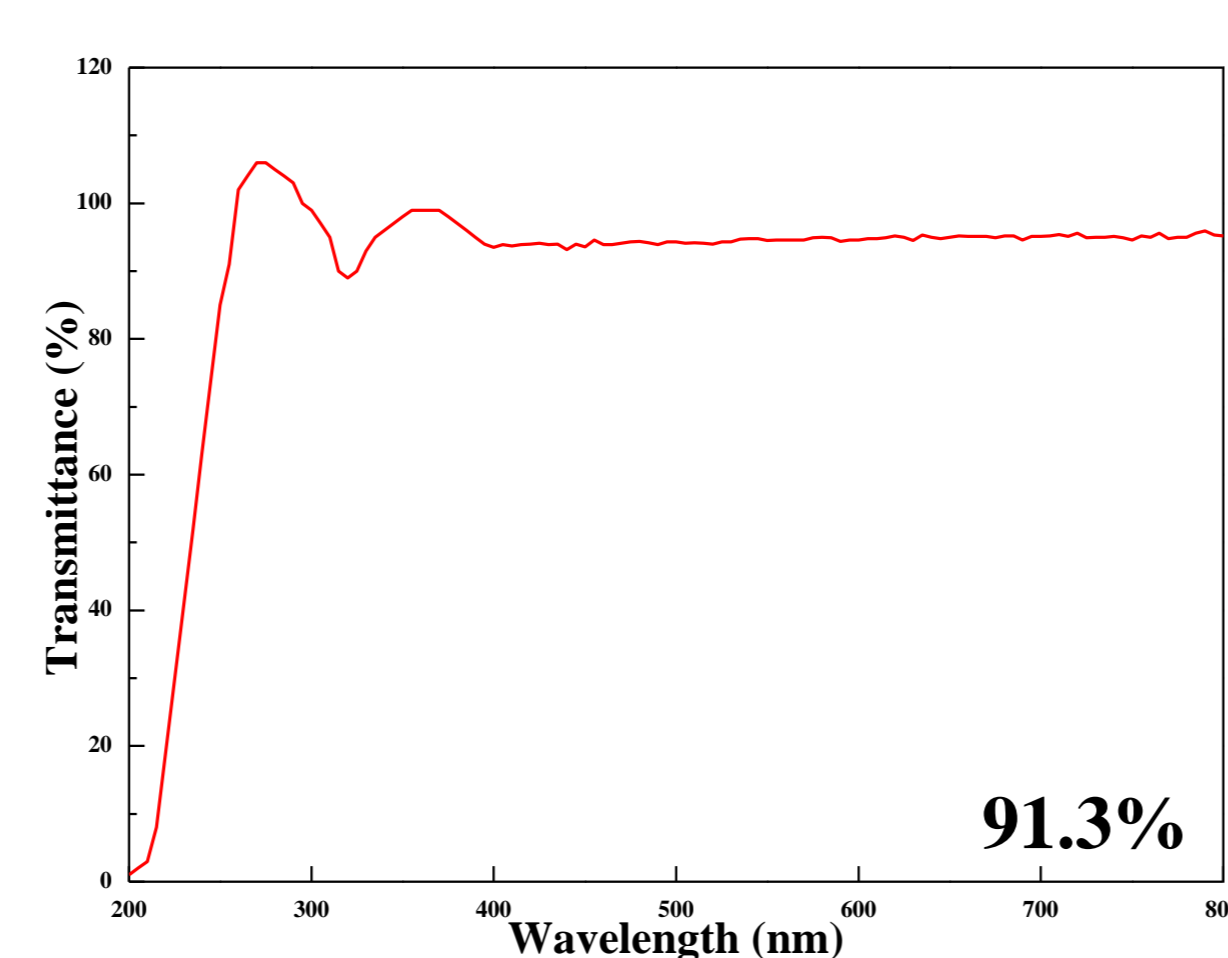


Annealing

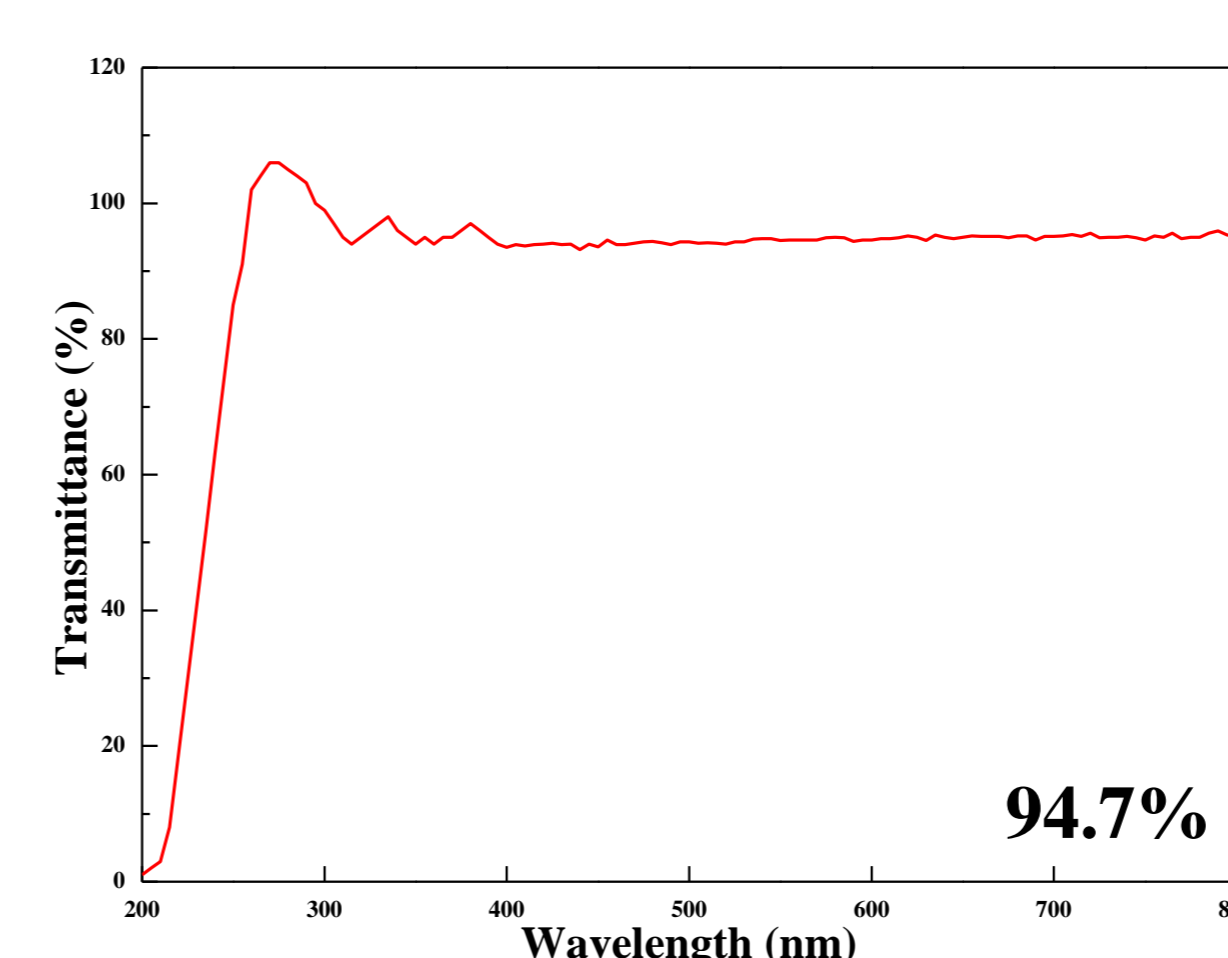
Condition	Number of annealing treatment											
	once		twice				third times					
	Heating time	Cooling time	Heating time	Cooling time	Heating time	Cooling time	Heating time	Cooling time	Heating time	Cooling time	Heating time	Cooling time
Anneal 1	2min	10min	2min	10min	2min	10min	2min	10min	2min	10min	2min	10min
Anneal 2	2min	10min	2min	10min	2min	10min	2min	10min	2min	10min	2min	10min
Anneal 3	2min	10min	2min	10min	2min	10min	2min	10min	2min	10min	2min	10min



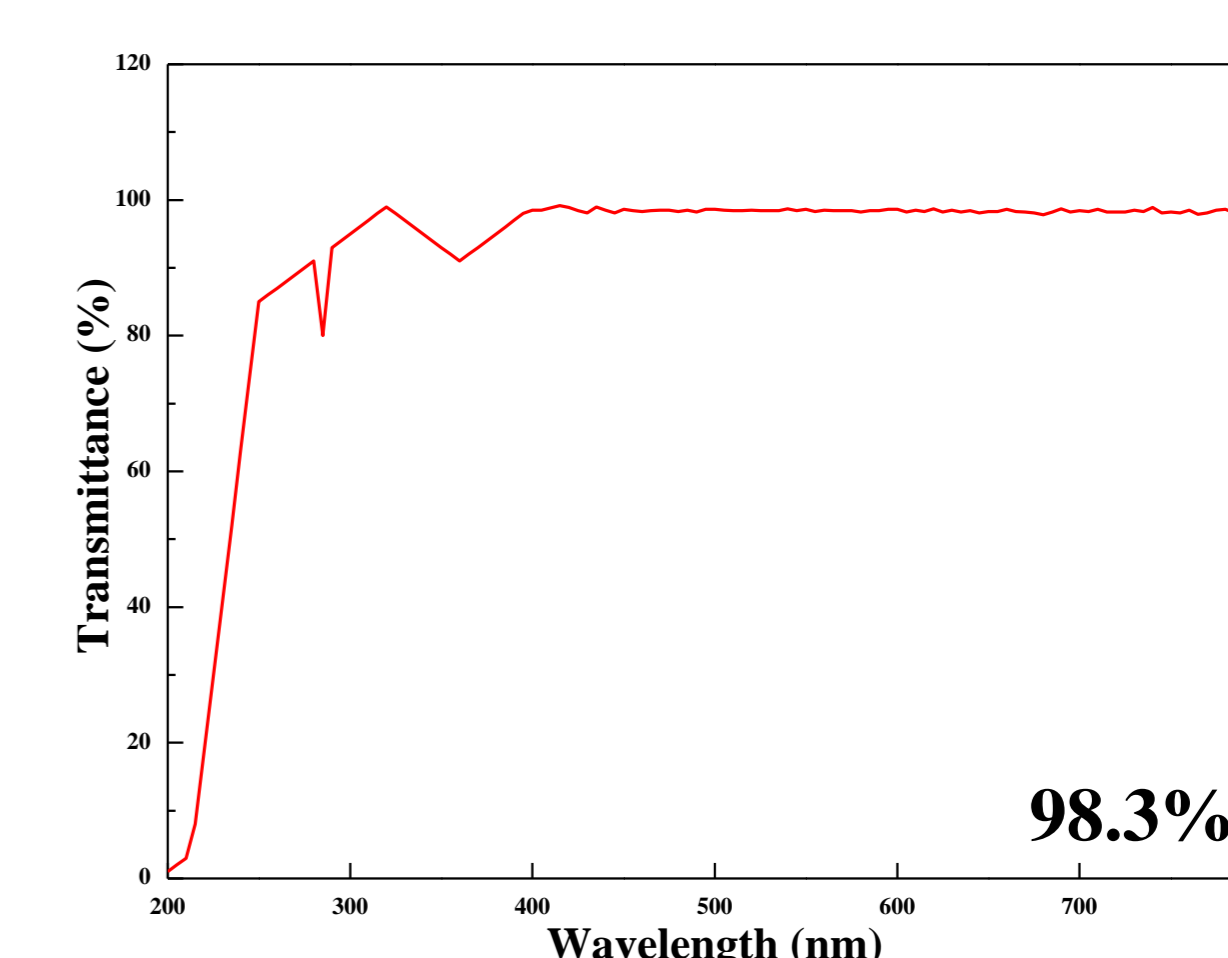
Room temperature



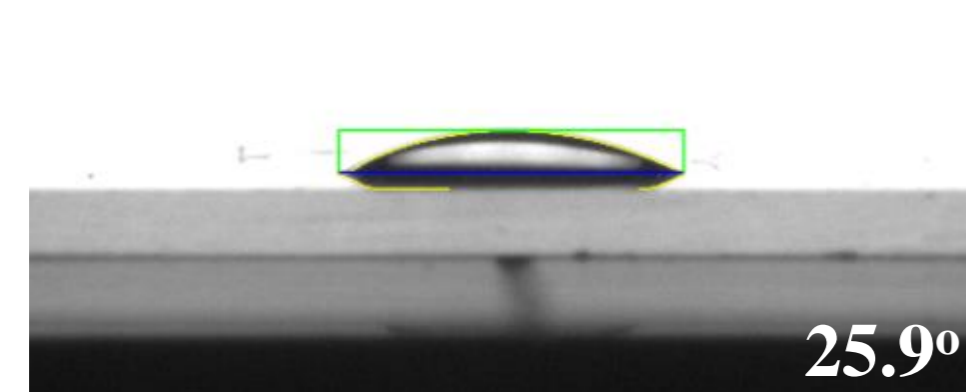
Anneal 1



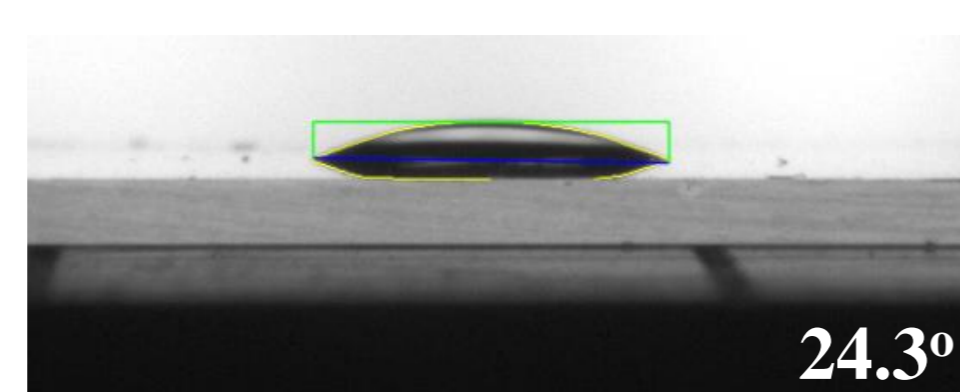
Anneal 2



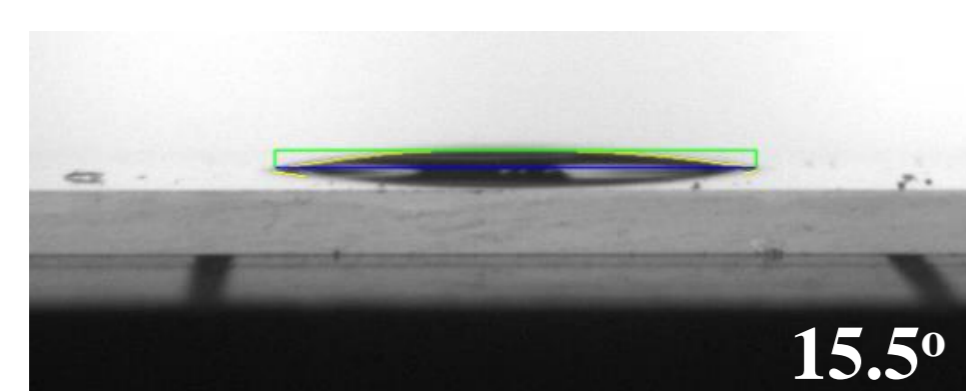
Anneal 3



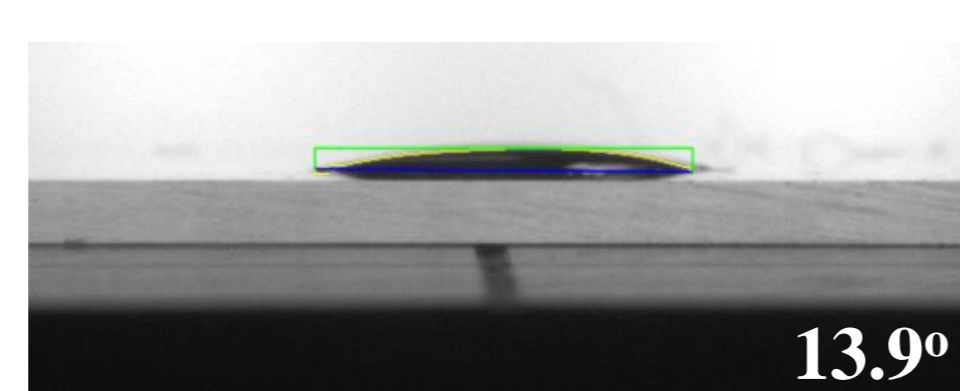
Room temperature



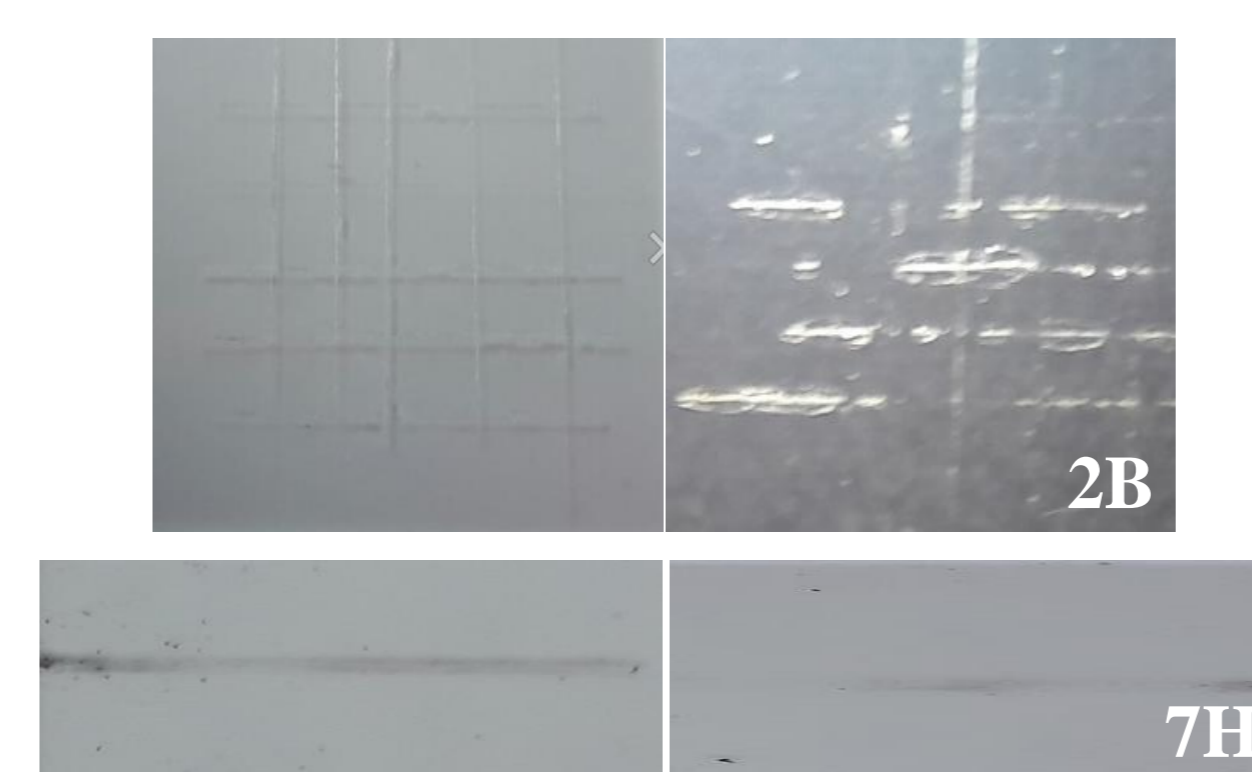
Anneal 1



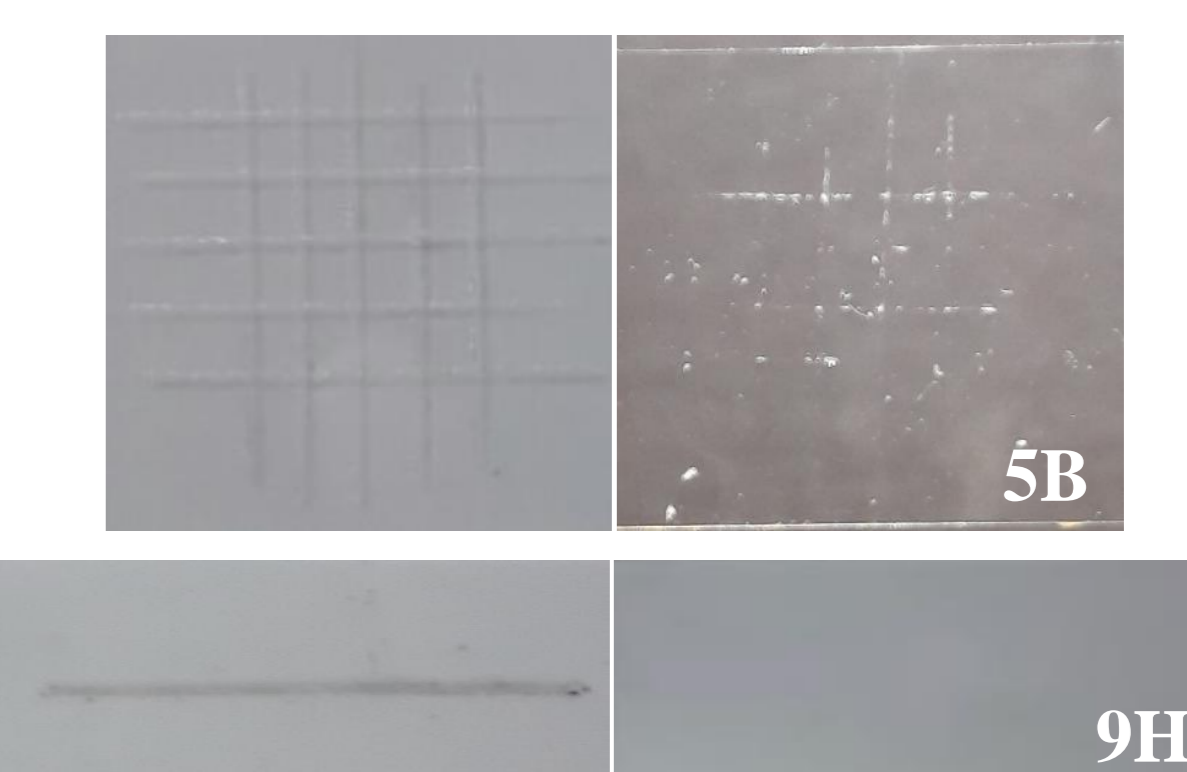
Anneal 2



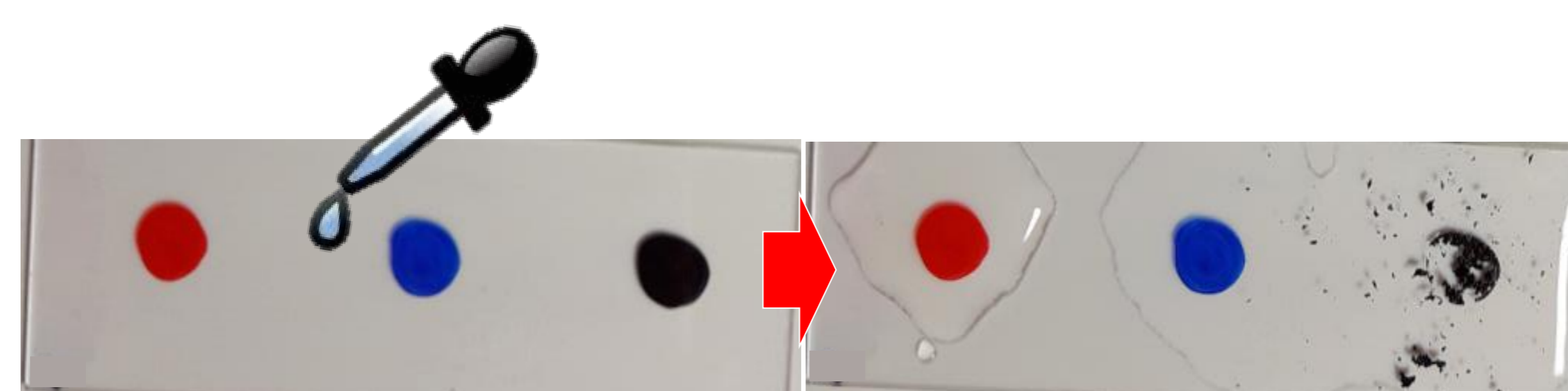
Anneal 3



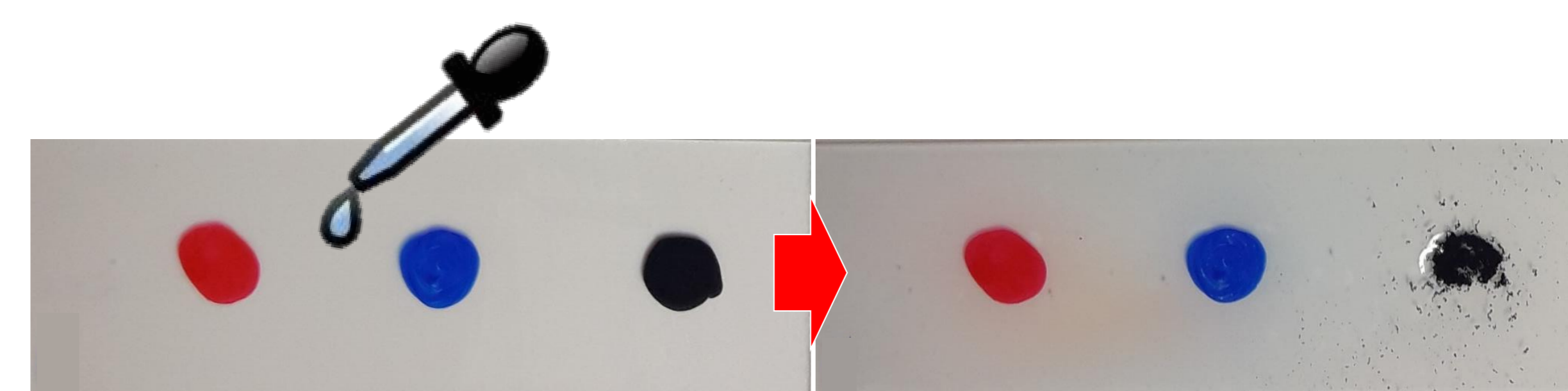
Room temperature



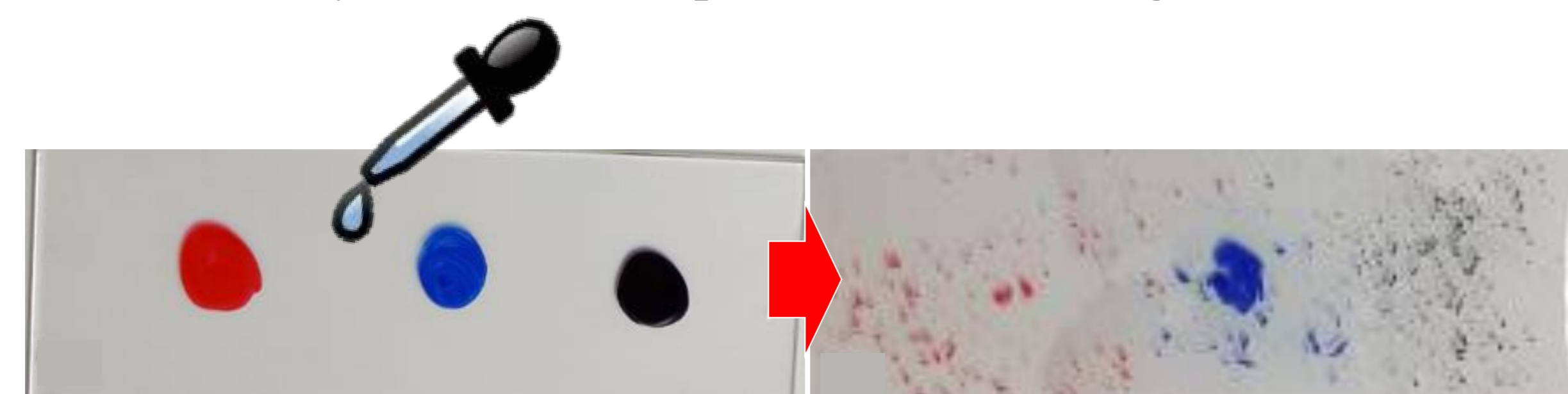
Anneal 1, Anneal 2 and Anneal 3



Dry at the room temperature (No annealing treatment)



Anneal 1 (Annealing treatment proceeded once)



Anneal 2 (Annealing treatment proceeded twice)



Anneal 3 (Annealing treatment proceeded third times)

Conclusions

- This study was conducted to investigate the possibility of utilizing the technology that exhibits excellent anti-pollution characteristics in the field.
- When the annealing treatment was performed more than once, the transmittance was higher than 91%, and hardness and adhesion were found to be the highest grade.
- In the condition that the annealing treatment was repeated three times, the anti-pollution characteristic was the best.
- The technology presented in this study has advantages that it can be processed in the field and has excellent usability.
- The developed technology is expected to be utilized not only in the PV module but also in the field where the anti-pollution characteristic is required.