# Peel test customer report

*IV 9022 – Technical Applications* **RENOLIT** *EXTERIOR*

Worms, 20.09.2019

*Customer:*

ENCRAFT INDIA PRIVATE LIMITED.
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Technical Applications **RENOLIT** *EXTERIOR*

*Summary:*

Encraft sent us some laminated samples. **RENOLIT** will check the lamination-quality and will report it to the customer.

Components:

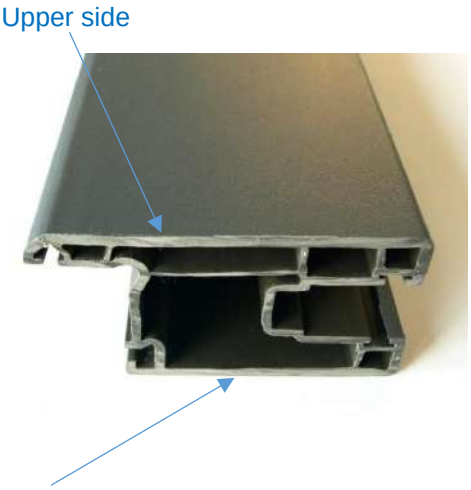
- Peel value
- Glue inspection
- Heat storage

# Content

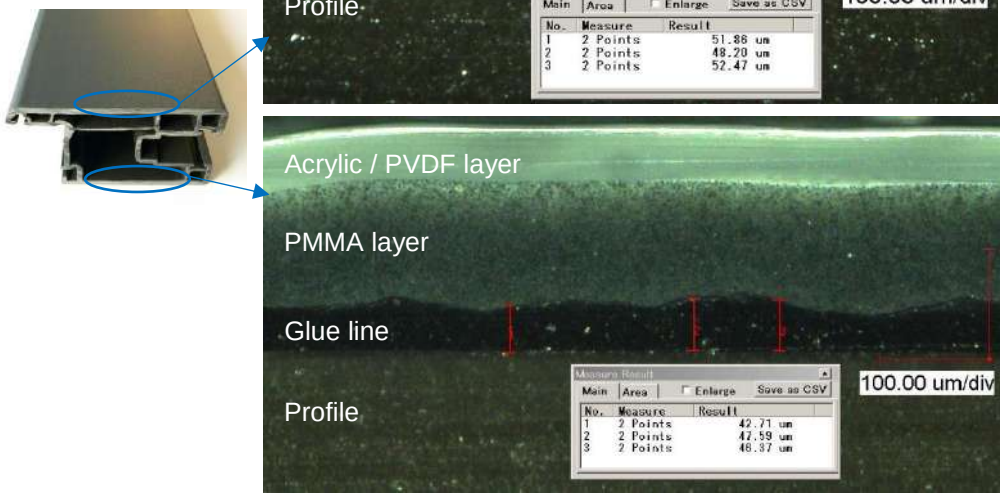
# 1. Lamination conditions of test sample 1

## Test Material 1

| | |
|---|---|
| Test date | 20th of September 2019 |
| Foil types | **RENOLIT** EXOFOL FX |
| Color | Anthracite Grey Smooth 2 |
| Profile material | PVC |
| FO ID | Not provided |
| Glue | TAKA 1308.1 |
| Primer | TAKA 171 |
| Ambiente Temperatur | 29 °C |
| Humidity | 70% |
| Profile temperature Before heating | 29 °C |
| Profile temperature After heating | 42 °C |
| Temperature of glue | 145 °C |
| Amount of glue | 60 g/m² |
| Temperature of foil | 41 °C |
| Lamination speed | 12 m/min |



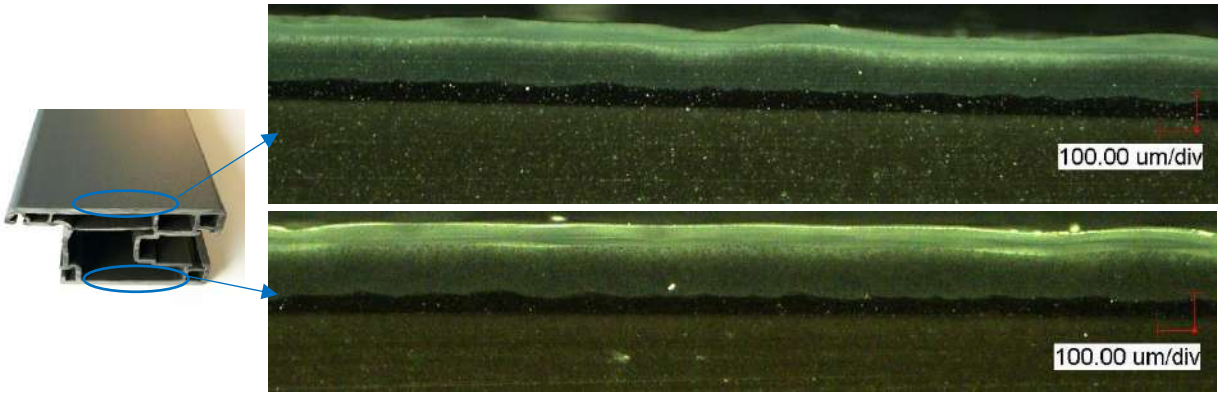
## 2. Glue thickness and peel test result (Upper and bottom side)




| | Glue thickess upper side [µm] | Glue thickess bottom side [µm] |
|---|---|---|
| **Test material** | 48 - 52 | 43 - 48 |
| **RENOLIT recommendation** | 40 - 60 | 40 - 60 |

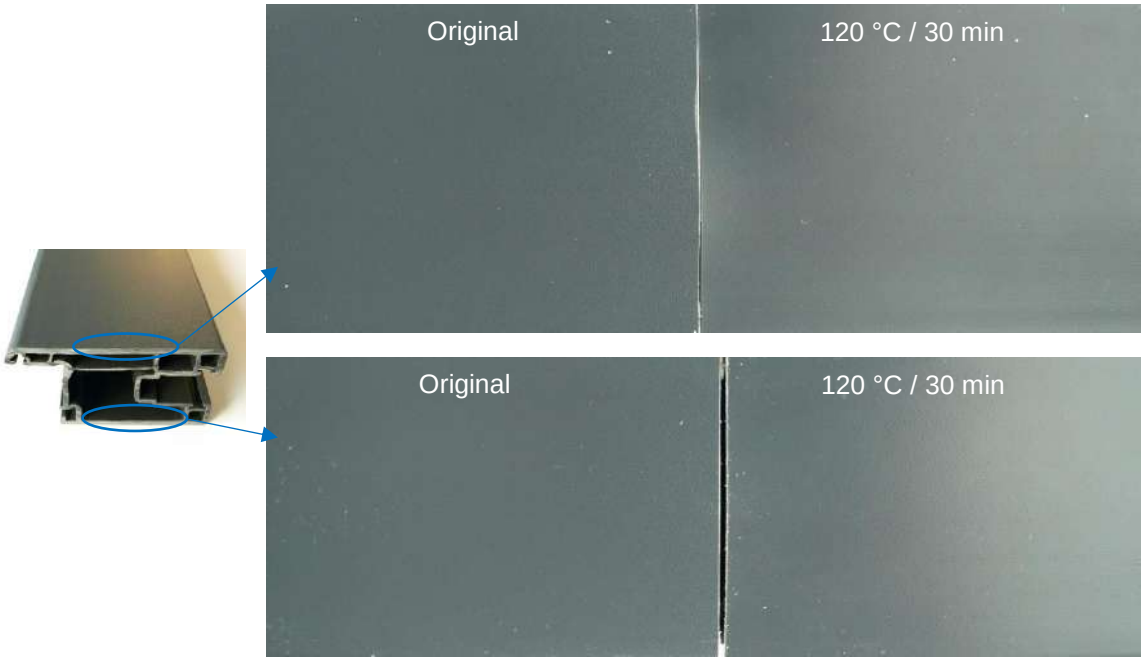
| | Peel value upper side [N/mm] | Peel value bottom side [N/mm] |
|---|---|---|
| **Test material** | 3,7 | 3,6 |
| **Breaking pattern** | Foil break | Foil break |

## 3. General Glue inspection




The general visual inspection of the glue line is ok.

## 4. Heat storage (comparison between original – 120 °C / 30 min)



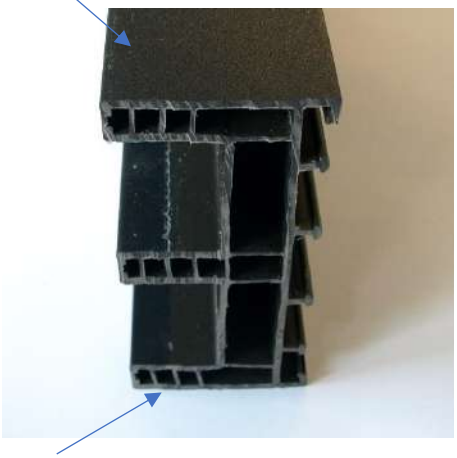

No bubbles visible after the heat storage.

# 5. Lamination conditions of test sample 2

## Test Material 2

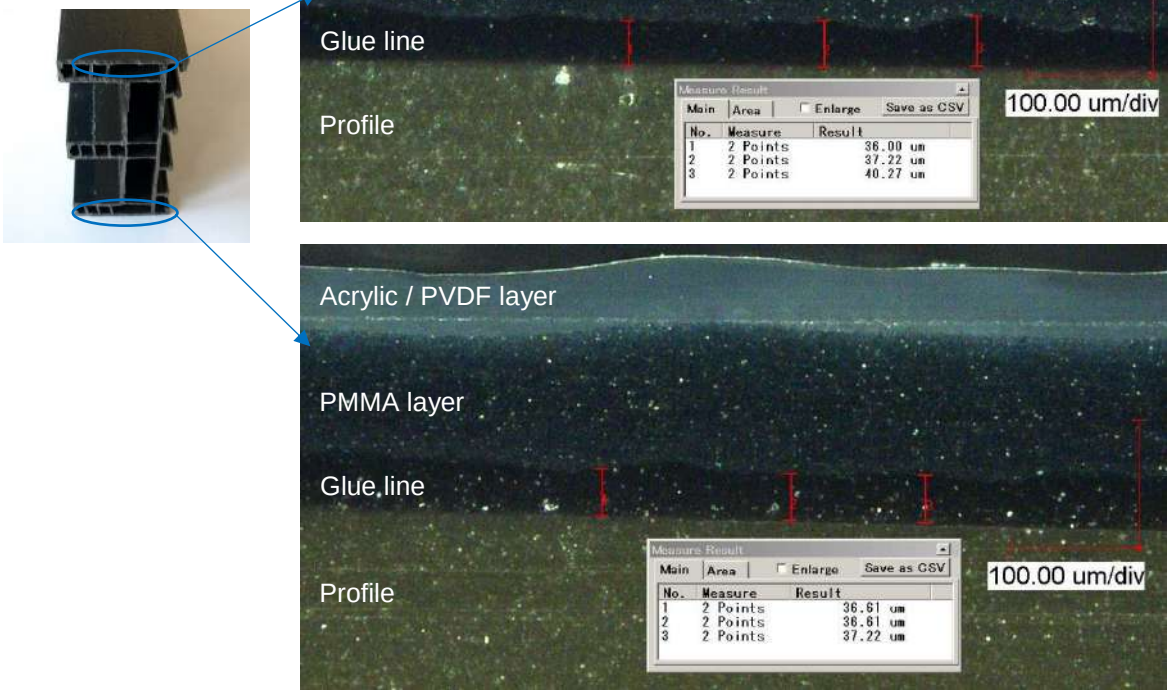
| | |
|---|---|
| Test date | 20th of September 2019 |
| Foil types | **RENOLIT** EXOFOL FX |
| Color | Black Smooth 2 |
| Profile material | PVC |
| FO ID | 108314139 |
| Glue | TAKA 1308.1 |
| Primer | TAKA 171 |
| Ambiente Temperatur | 31 °C |
| Humidity | 69% |
| Profile temperature Before heating | 31 °C |
| Profile temperature After heating | 42 °C |
| Temperature of glue | 146 °C |
| Amount of glue | 60 g/m² |
| Temperature of foil | 42 °C |
| Lamination speed | 14 m/min |

Upper side



Bottom side

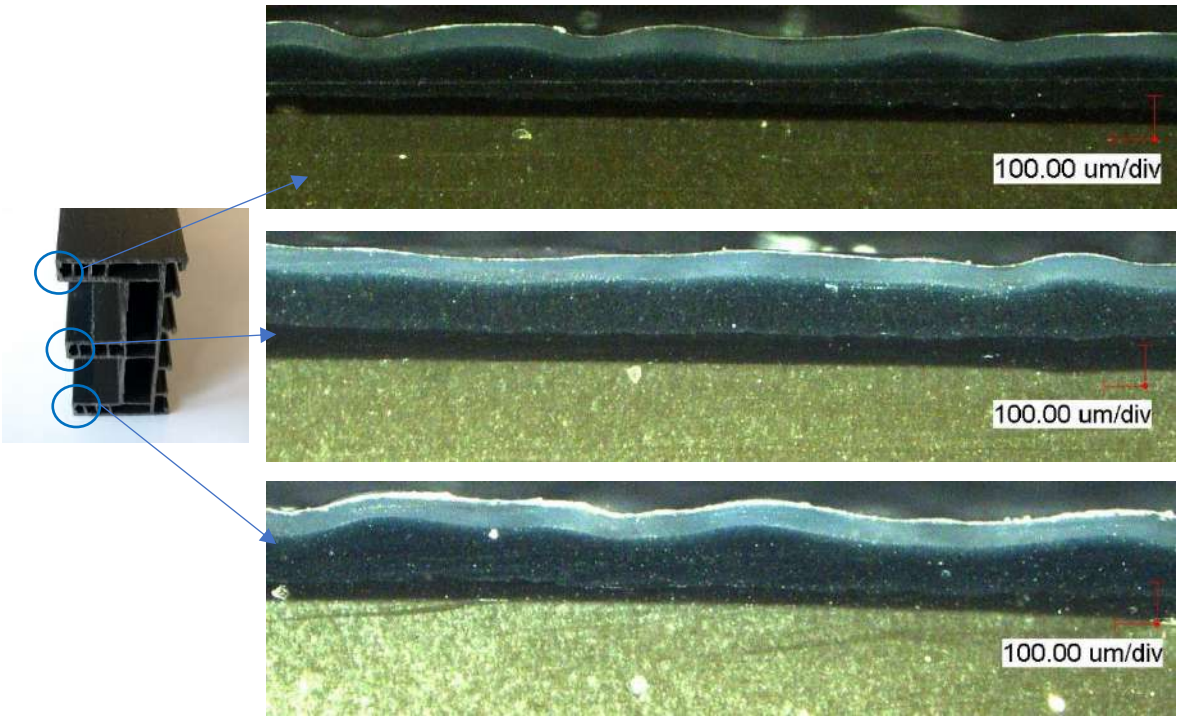
## 6. Glue thickness and peel test result (Upper and bottom side)




| | Peel value upper side [N/mm] | Peel value bottom side [N/mm] |
|---|---|---|
| **Test material** | 3,9 | 4,0 |
| **Breaking pattern** | Foil break | Foil break |

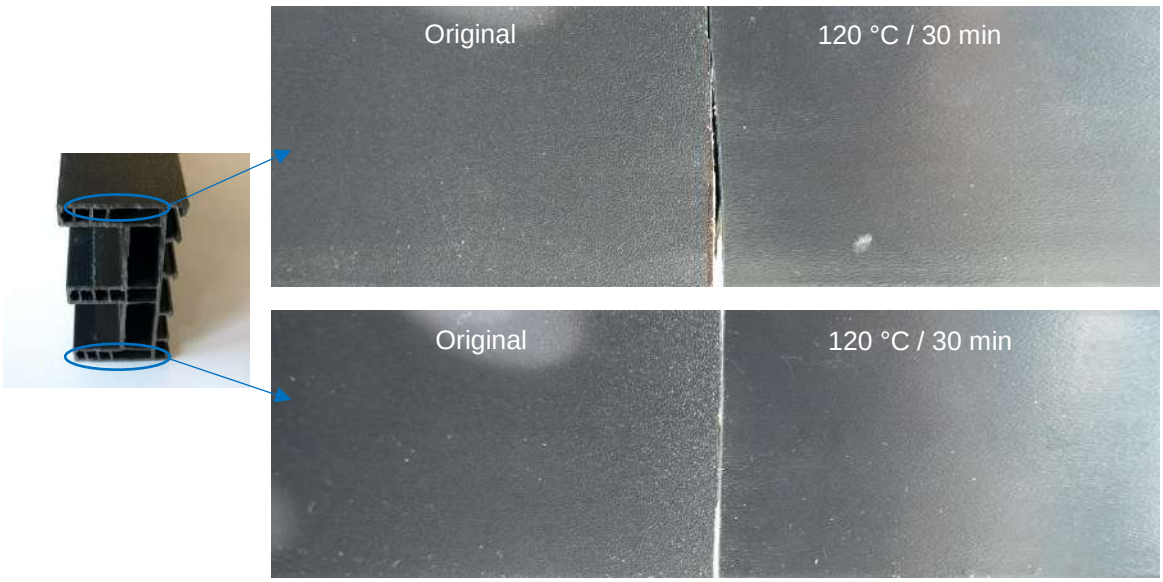
| | Glue thickess upper side [µm] | Glue thickess bottom side [µm] |
|---|---|---|
| **Test material** | 36 - 40 | 37 |
| **RENOLIT recommendation** | 40 - 60 | 40 - 60 |

## 7. General Glue inspection




The general visual inspection of the glue line is ok.

## 8. Heat storage (comparison between original – 120 °C / 30 min)



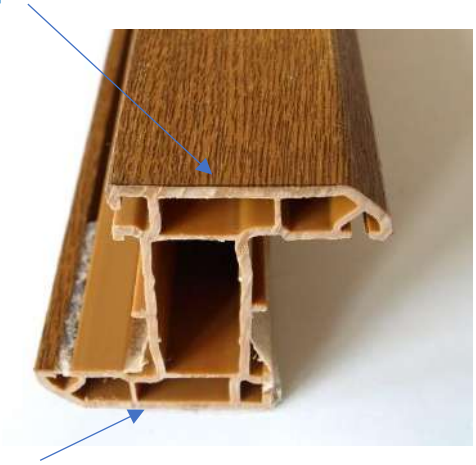

No bubbles visible after the heat storage.

# 9. Lamination conditions of test sample 3

## Test Material 3

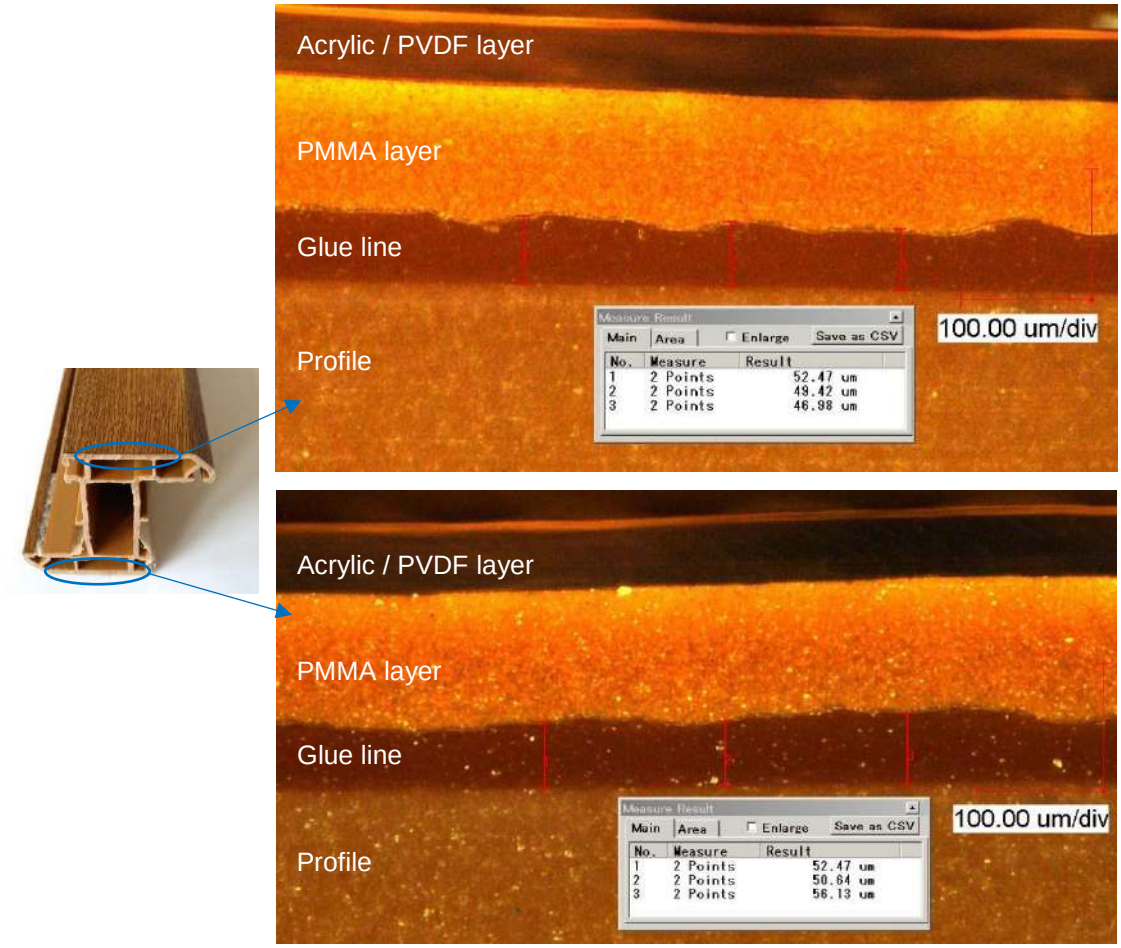
| | |
|---|---|
| Test date | 20th of September 2019 |
| Foil types | **RENOLIT** EXOFOL FX |
| Color | Golden Oak |
| Profile material | PVC |
| FO ID | 108096420 |
| Glue | TAKA 1308.1 |
| Primer | TAKA 171 |
| Ambiente Temperatur | 29,5 °C |
| Humidity | 75% |
| Profile temperature Before heating | 30 °C |
| Profile temperature After heating | 42 °C |
| Temperature of glue | 145 °C |
| Amount of glue | 60 g/m² |
| Temperature of foil | 41 °C |
| Lamination speed | 14 m/min |

Upper side



Bottom side

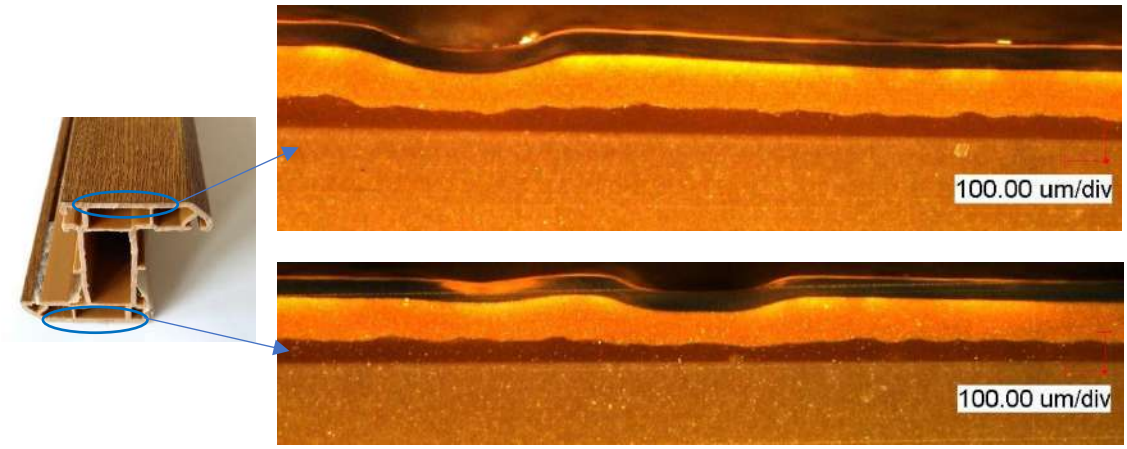
## 10. Glue thickness and peel test result (Upper and bottom side)




| | Peel value upper side [N/mm] | Peel value bottom side [N/mm] |
|---|---|---|
| **Test material** | 3,7 | 4,0 |
| **Breaking pattern** | Foil break | Foil break |

| | Glue thickess upper side [µm] | Glue thickess bottom side [µm] |
|---|---|---|
| **Test material** | 47 - 52 | 51 – 56 |
| **RENOLIT recommendation** | 40 - 60 | 40 - 60 |

## 11. General Glue inspection




The general visual inspection of the glue line is ok.

## 12. Heat storage (comparison between original – 120 °C / 30 min)

No bubbles visible after the heat storage.

# 13. Conclusion

The glue thickness of all with **RENOLIT** EXPOFOL FX film laminated profiles is as follows:

- Upper side – Between 36 - 52 microns
- Bottom side – Between 37 - 56 microns

We recommend a thickness between 40 and 60 microns.

The general glue inspection is ok.

The bonding of all with **RENOLIT** EXOXOL FX film laminated profiles shows following results:

- Upper side – between 3,7 and 3,9 N/mm with foil break
- Bottom side – between 3,6 and 4,0 N/mm with foil break

The RAL GZ 716 requirement is 3,0 N/mm.

The heat storage of all with **RENOLIT** EXOXOL FX film laminated profile shows following results:

- No bubbles visible