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REHAU Group /CHEMISTRY DEPARTMENT ASIA PACIFIC

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TO WHOM IT MAY CONCERN:

Dear Customer:

We received recently a request from your company regarding the confirmation and methodology of dosage TiO₂ in our PVC1476 window profiles that supplying to you.

We have reviewed the above mentioned request internally, with our specialist upon formulation, and based upon our company's interpretation and to the best of our knowledge, the product/s as listed below:

PVC1476 serial Window profile

From REHAU is compliant with requirement of "WINDOW ASSOCIATION OF NEW ZEALAND":

a) Test as per EN12608 for the Severe Climate test option substituting a minimum 90GJ natural exposure to solar radiation (15 years NZBC durability requirement) for the 12GJ (2 years) European exposure requirement.

And/Or

b) b) Incorporate a minimum 8phr Rutile Titanium Dioxide into the uPVC formulation and test to EN12608 and EN153.

Regarding the concern of calculation methodology of TiO₂ dosage (i.e. 8 phr), demonstrate as below:

Refer to "Periodic table of the elements" and "XRF report from "SPECTRACHEM ANALYTICAL "":

Ti (Atomic weight) = 47.9; O (Atomic weight) = 16;

(Ti: Titanium element; O: Oxygen element;)

TiO₂ (Molecular weight) = 79.9;

Base on XRF report:

Ti % (From XRF report) = 3.54 ~ 3.78%, convert to TiO₂ % (in window profile XRF measured) = $3.78 / 47.9 \times 79.9$ = 6.3%; which is in a range of **TiO₂ = 5.90 ~ 6.30%** in window profile;

Taken 130 phr as base of total formula of window profile, 8 phr TiO₂, then

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In actual formula PVC1476:

TiO₂ % (in real formula) = 6.15%;

It's compliant with requirement of "WINDOW ASSOCIATION OF NEW ZEALAND, clause b)".

Should you need further assistance, please feel free to contact our sales offices or me directly.

Best regards

Wu XiaoJiang
CHEM Asia Pacific
REHAU Polymers (SuZhou) Co.Ltd.