

Visit Report

To : YUHO
Cc : FNM, LIAX, CAAG, WNGJ, GUOS, LINR, XUEA, LIAW, FUJT,
LIHJ, LAIC, GUOC, ZHAI
From : ZHVI

Date of visit: 30 June 2023

Date of report: 03 July 2023

Donlim

Participants	:	Donlim	:	Mr. Zhou (<i>Production Supervisor</i>)
			:	Ms. Chen (<i>PMC engineer</i>)
		EMS	:	Hosea Yu, Vincent Zhu
OEM	:	SMEG		
Sales responsible	:	YUHO		
Distributor	:	No		
Location	:	Foshan, Guangdong		
Application	:	Kettle, Water Meter		
Segment Code	:	420		
Project number	:	Old		
Material	:	Grilamid TR 55 LP Natural 6012 (Clear transparency)		
USP	:	>8000 cycles water boiling resistance, BPA free		
Potential	:	10 t/a		
SOP	:	Running		



Water Meter



Kettle

1. Target of visit

Problem solving of yellowing issue of compounded material by ECSZ plant.

2. Summary

- Grilamid TR 55 LP Natural 6012 compounded from ECSZ plant (1t order, 200kg delivered) as alternative to resolve ECCH delivery issue.
- Customer reported yellowing issue and requested EMS onsite support to achieve exact same appearance with golden samples through naked eyes checking.
- Grilamid MB TR 55 Violet 4516 was trialed with different dosage (1%, 2%, 3%). Customer QA did not accept this solution (yellowing accepted but greenish occurred with MB $\geq 2\%$).
- Suggest dry blending of this grade for further production.

3. Details

Customer & Project information

- Running project in Donlim with Grilamid TR 55 LP Natural 6012 produced in ECCH. Considering delivery delay in May, sales requested recipe transfer to ECSZ, dry blend 75 kg by ECSZ was prepared and qualified after EMS onsite support to improve yellowing and streak issue.

- 1t material order was received in June, 200 kg (Batch number, 6012128/01) delivered in 25th June, in compounded granules from ECSZ.

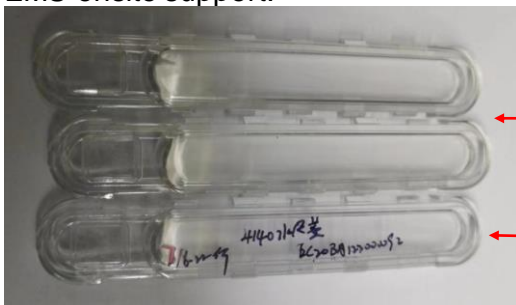


Dry blend in ECCH and ECSZ



Compounded in ECSZ

- Customer claimed yellowing issue with new arrival compounded granules and requested EMS onsite support.



Sample with compounded granules

Golden sample

Yellowing than golden sample

- From COA, moisture was 0.03% before delivery.
- Customer pre-dried material in desiccant dryer, 70°C/10hours and 80°C/4hours before this molding trial. No obvious yellowing can be seen with granules.
- Grilamid MB TR 55 Violet 4516 was considered to improve yellowing and achieve bright clear transparency.
- Different dosage (1%, 2%, 3%) was trialed, results were shown as below.



1%MB

2%MB

3%MB

Golden samples

- Yellowing issue was improved with MB 4516, yellowing was accepted while greenish was observed with MB dosage $\geq 2\%$.
- Customer QA engineer did not accept the samples with MB 4516, exact appearance with golden samples was requested through naked eye checking.
- The extrusion process of compounding might lead to more yellowing than dry blend, suggest dry blend of this grade for further production.

4. Actions

No.	Action	Resp.	Due date
1	Obtain customer feedback in following mass production.	YUHO	30 July 2023

Best regards
Vincent Zhu