

Montan wax alternatives

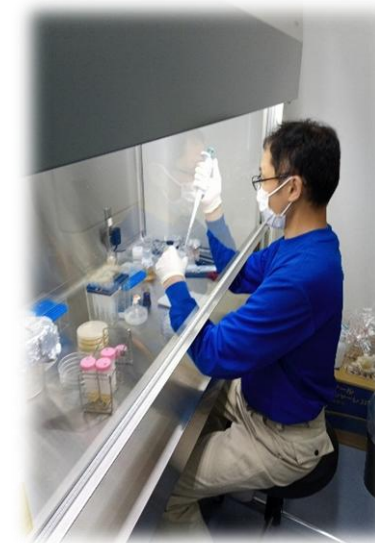
- ✓ Sustainable material
- ✓ Biological material
- ✓ Eco-friendly / Green material

- Company profile (P3~6)
- Montan wax alternatives (P7~16)



Company	TOA KASEI CO., LTD.
President	Takeshi Asai
Found	10 th March in 1913
Established	29 th August in 1952
Location	Osaka head office Tokyo office Seoul office Aikawa wax factory Higashi-Osaka warehouse
Certification	ISO9001, 14001
Features	▪ Our wax has been approved for severe quality application like semiconductor encapsulant, cosmetics and food.

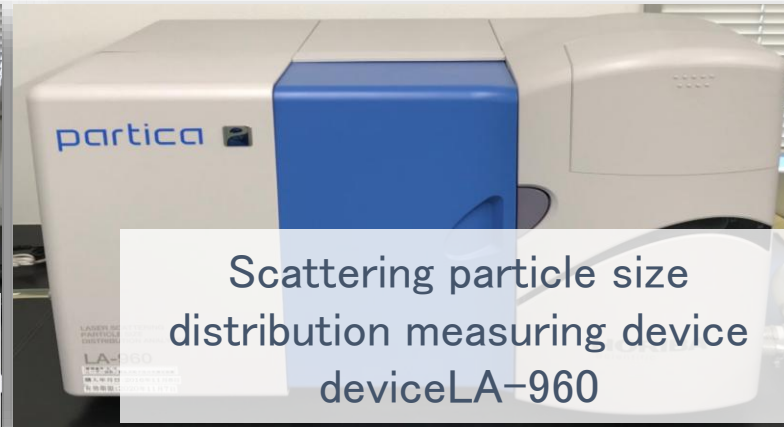
Aikawa wax plant



- Careful selection of raw materials by quality control
- Up to 1200t/a can be produced
- Can be refined and processed with original technology and equipment
- Responding to a wide range of individual customer needs



Thermal Analyzer
DSC 6200 TG/DTA 6200



Scattering particle size
distribution measuring device
device LA-960



Gas chromatography
GC-2010 Plus Plus



Spectrophotometer
UV-1850



Granulator

1913	Opened joint-stock company “Matsunami sho-ten”
1982	Increased capital stock to 10 million JPY
1993	Opened Tokyo branch
2000	Established Aikawa factory
2007	Passed ISO Certification 14001
2012	Passed ISO Certification 9001
2013	Our Centennial anniversary
2015	Received award as an Excellent Corporation from East Tax Office
2020	Established Higashi Osaka warehouse

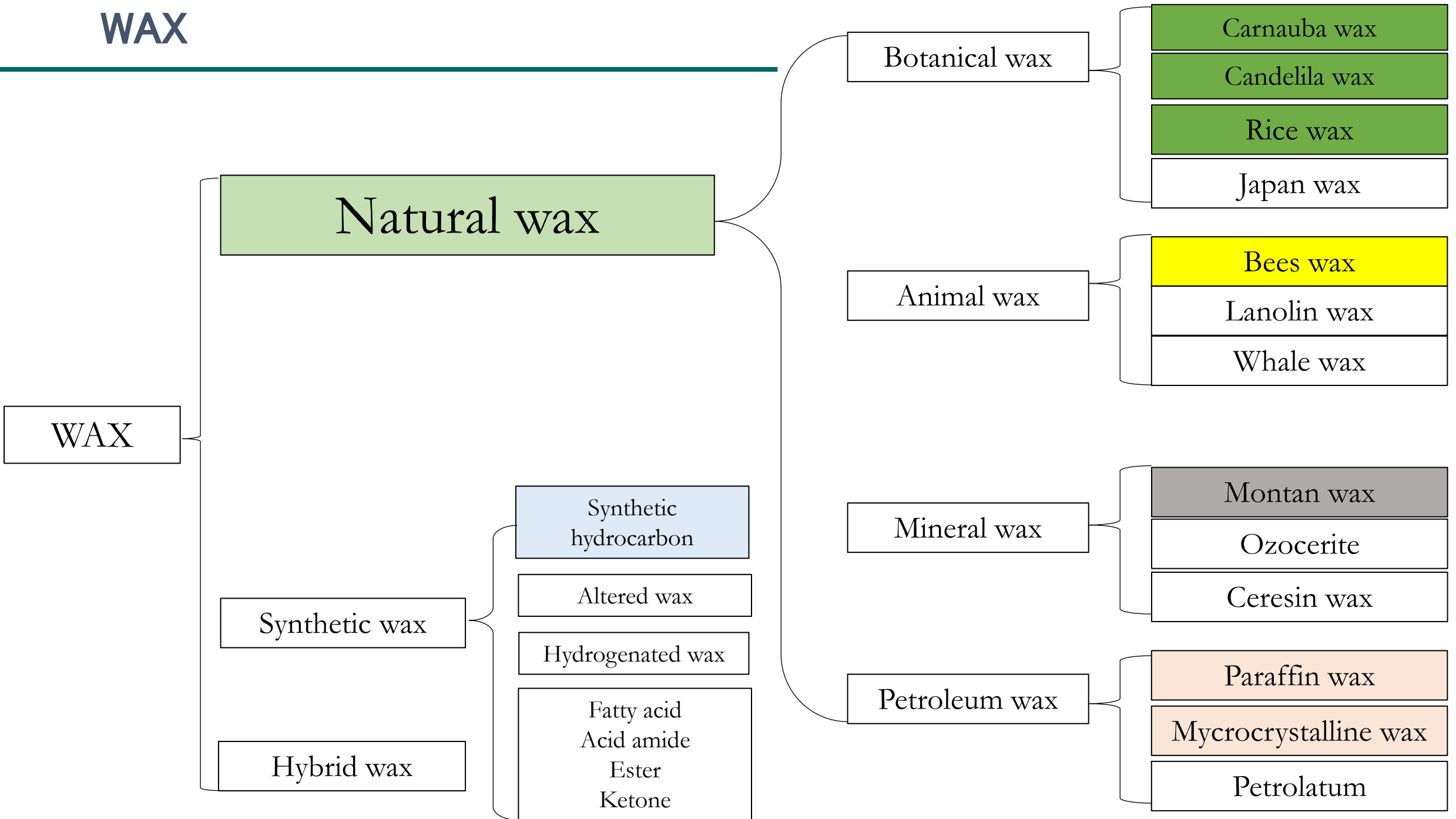
Main Customers



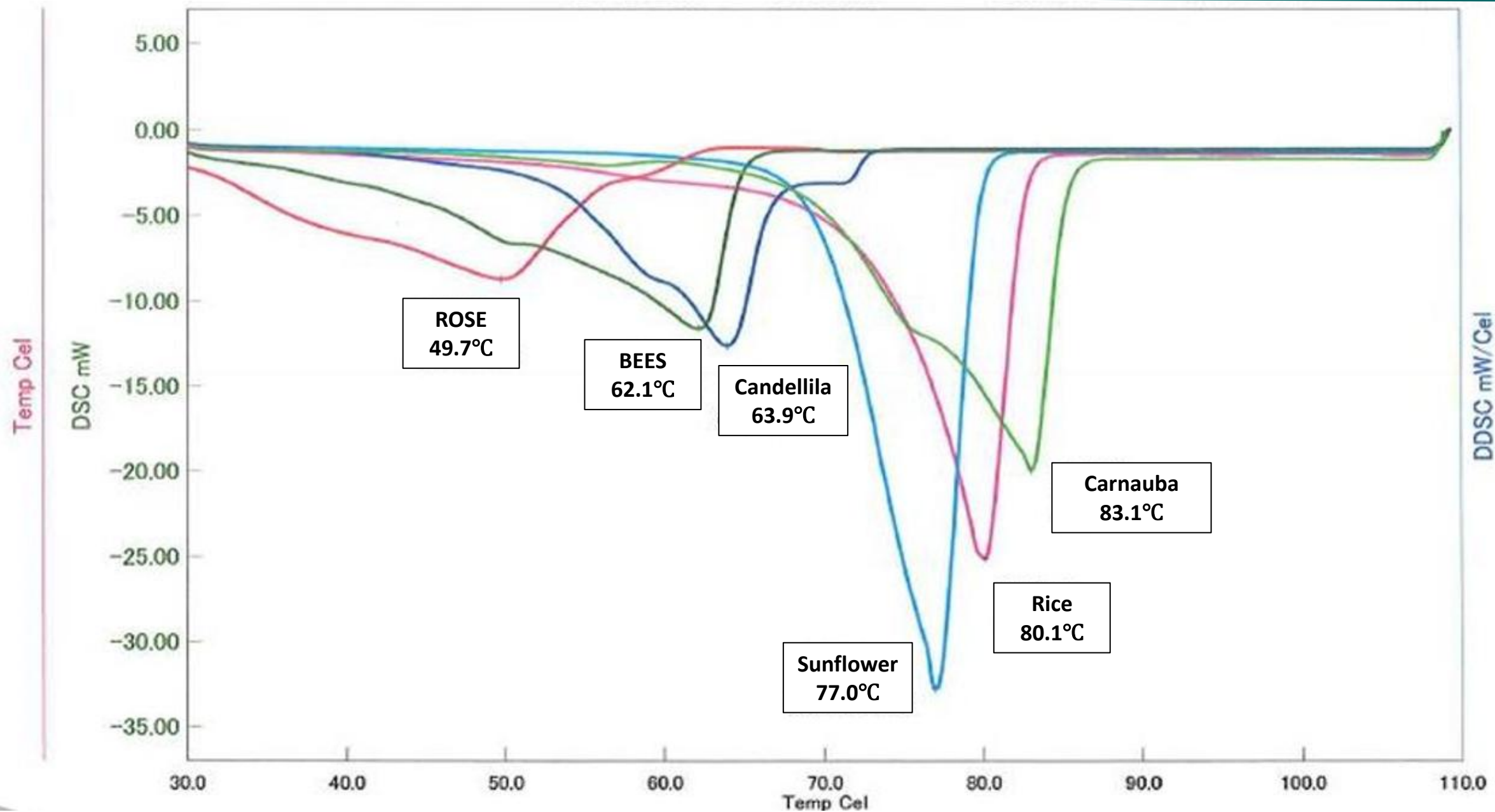
Main Partners



WAX



DSC chart



Alternatives to Montan wax



- ✓ Sustainable material
- ✓ Biological material
- ✓ Eco-friendly / Green material



Bench mark product	Product name	Composition	Acid value (mg KOH/g)	Saponification value (mg KOH/g)	Iodine value	Melting point (°C)	Color / Shape	Features
E type	TOWAX-3F19	- Rice bran wax	8.8	78.9	7.0	78.1	Whitish Powder/Flake	Improving high heat-resistance by removing gum substance.
	X1-S060417-2	- Partly saponified rice bran wax	9.5	83.2	6.3	77.8	Whitish Powder/Flake	Improving a releasability to TOWAX-3F19
	TOWAX-3F20	- Partly saponified rice bran wax	62.9	76	11.5	75.3	Light yellow Flake	Broad the molecular wight distribution due to refining and bring wax property closer to montan waxes
OP type	TOWAX-541	- Carnauba wax - Rice bran wax - Hydrocarbon wax	3.5	62.0	6.3	80.6	Light yellow Powder/Flake	Has good results as alternatives to Montan OP.
	TOWAX-3F21	- Partly saponified rice bran wax - Carnauba wax	53.8	75.8	9.6	75.7	Light yellow Powder/Flake	Has good results as alternatives to Montan OP.

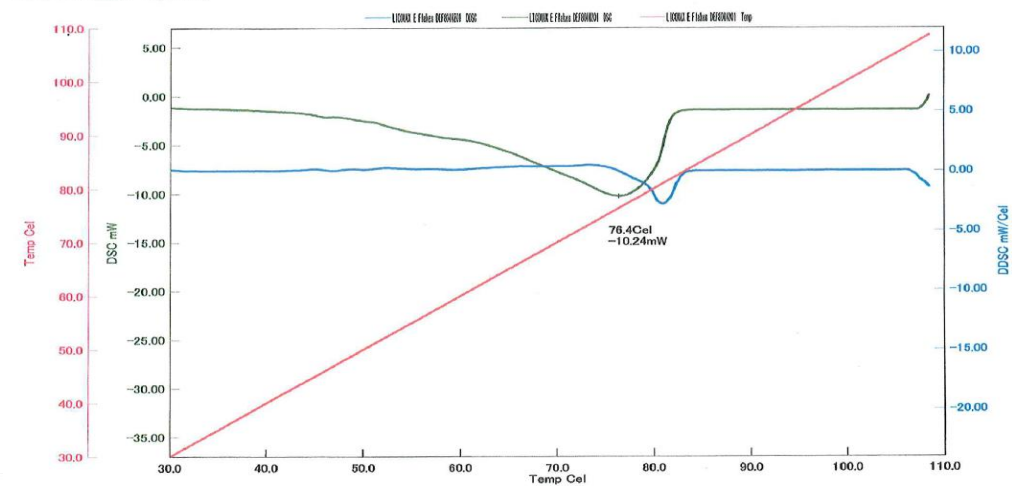
Montan E		Ester wax	15-20	140-160	-	79-83		
Montan OP		Saponified wax	9-14	102-122	-	96-102		

Montan wax E : DSC chart

モジュール: DSC
データ名: LICOWAX E Flakes DEF8044201
測定日付: 2021/01/07
サンプル名: LICOWAX E Flakes DEF8044201
サンプル質量: 9.980 mg (10.000 mg)
リファレンス名: blank
リファレンス質量: 10.350 mg

温度プログラム:
1* Cel Cel Cel/min min s
30 110 5 2 0.1

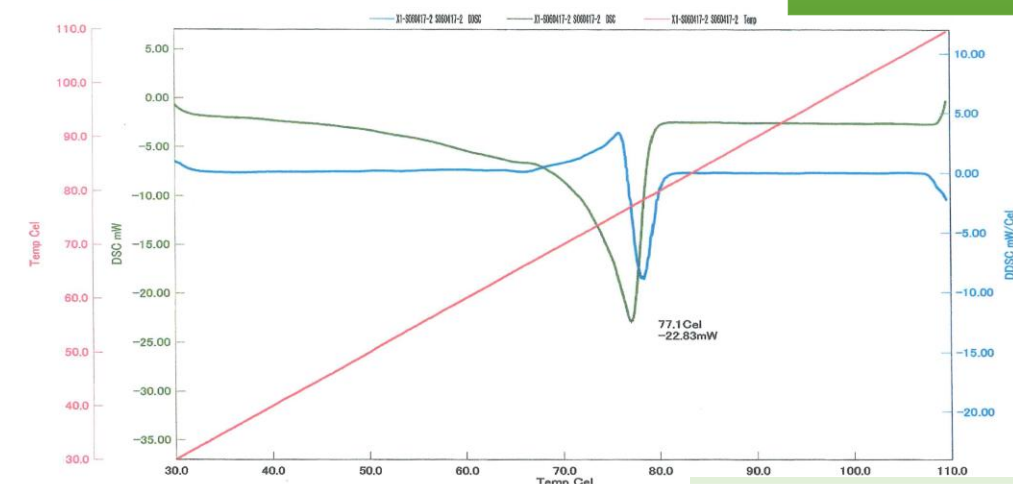
Montan E



モジュール: DSC
データ名: X1-S060417-2 S060417-2
測定日付: 2024/04/19
サンプル名: X1-S060417-2 S060417-2
サンプル質量: 10.100 mg
リファレンス名: blank
リファレンス質量: 10.350 mg

温度プログラム:
1* Cel Cel Cel/min min s
30 110 5 2 0.1

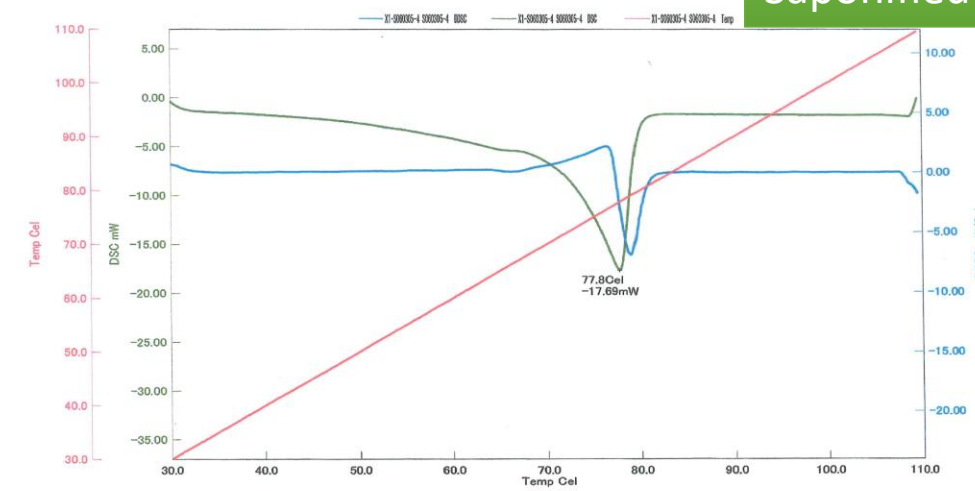
TOWAX-3F19
Rice wax



モジュール: DSC
データ名: X1-S060305-4 S060305-4
測定日付: 2024/03/11
サンプル名: X1-S060305-4 S060305-4
サンプル質量: 9.500 mg
リファレンス名: blank
リファレンス質量: 10.350 mg

温度プログラム:
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30 110 5 2 0.1

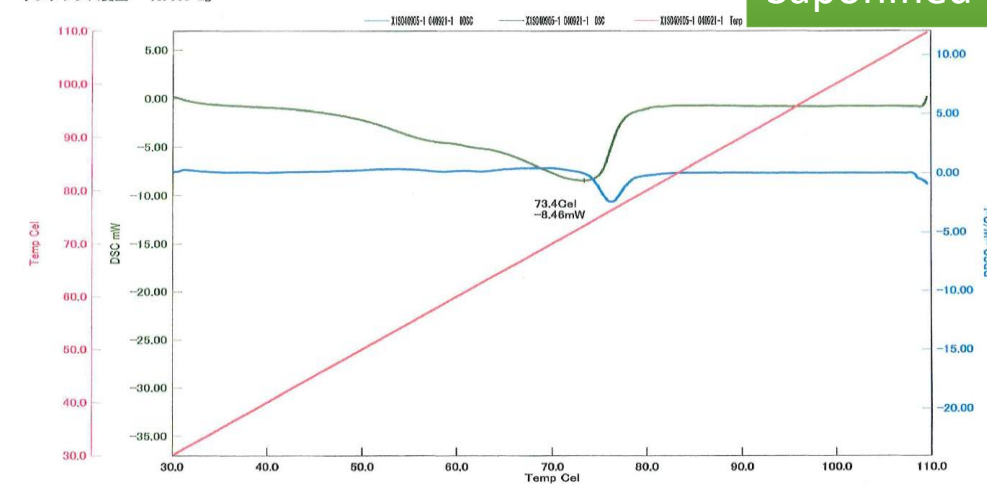
X1-060417-2
Saponified rice wax



モジュール: DSC
データ名: X1S040905-1 040921-1
測定日付: 2022/09/28
サンプル名: X1S040905-1 040921-1
サンプル質量: 9.860 mg
リファレンス名: blank
リファレンス質量: 10.000 mg

温度プログラム:
1* Cel Cel Cel/min min s
30 110 5 2 0.1

TOWAX-3F20
Saponified rice wax

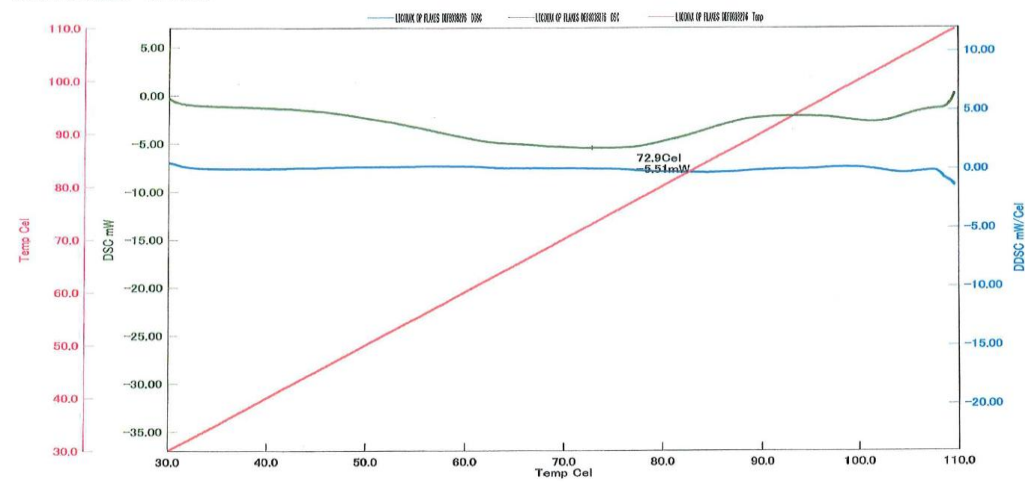


Montan wax E : DSC chart

モジュール: DSC
データ名: LIGOWAX OP FLAKES DEF8038276
測定日付: 2022/03/11
サンプル名: LIGOWAX OP FLAKES DEF8038276
サンプル質量: 10.680 mg (10.000 mg)
リファレンス名: blank
リファレンス質量: 10.650 mg

温度プログラム:
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30 110 5 2 0.1

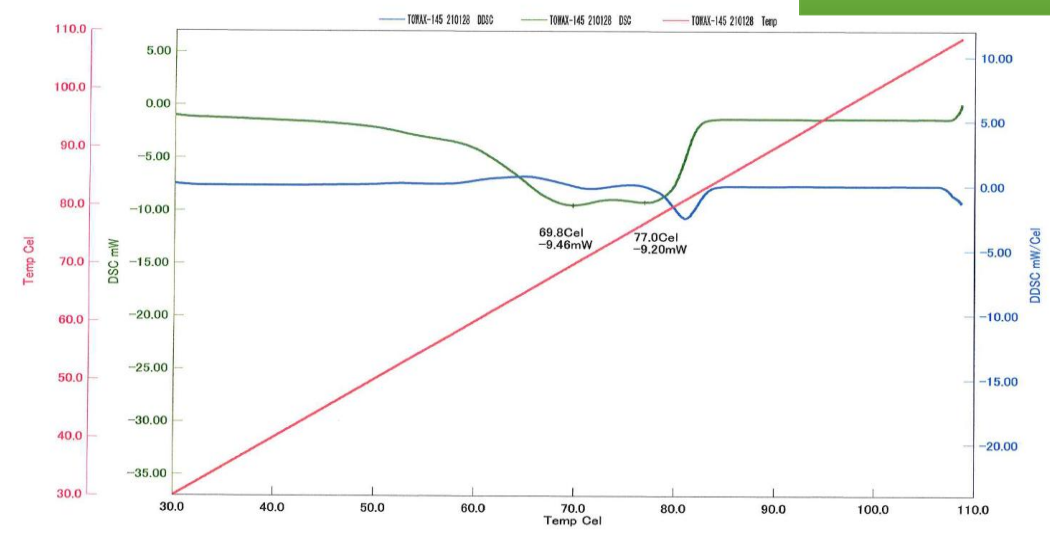
コメント:
オペレータ: LIGOWAX OP FLAKES DEF8038276
依頼検査



モジュール: TOWAX-3F21 Z1V126
データ名: 2021/01/29
測定日付: TOWAX-541 210128
サンプル名: TOWAX-541 210128
サンプル質量: 9.820 mg (10.000 mg)
リファレンス名: blank
リファレンス質量: 10.350 mg

温度プログラム:
1* Cel Cel/min min s
30 110 5 2 0.1

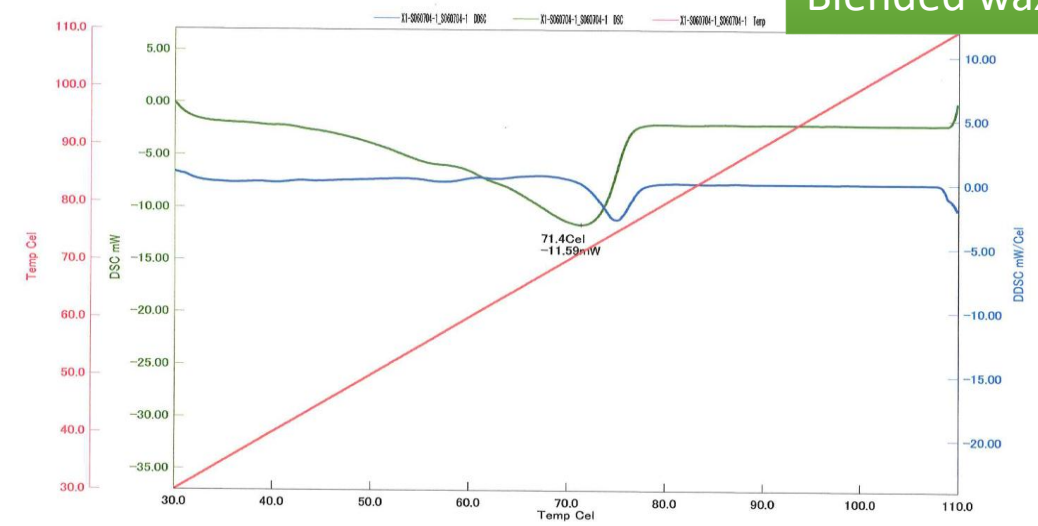
コメント:
オペレータ: TOWAX-541 210128



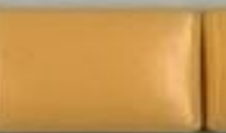
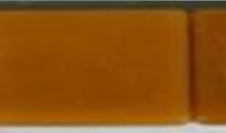
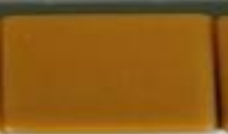
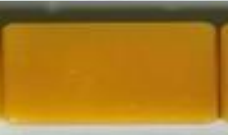
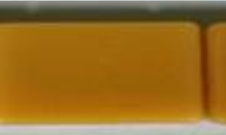
モジュール: DSC
データ名: X1-S060704-1_S060704-1
測定日付: 2024/07/05
サンプル名: X1-S060704-1_S060704-1
サンプル質量: 10.500 mg (10.000 mg)
リファレンス名: blank
リファレンス質量: 10.350 mg

温度プログラム:
1* Cel Cel/min min s
30 110 5 2 0.1

コメント:
オペレータ: X1-S060704-1_S060704-1



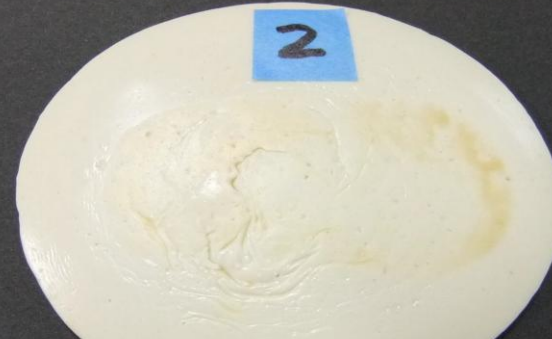
Heat resistance test

Sample	Weight loss (3hrs)	15min	1h	2h	3h
3 F19	0.74%				
3F17	0.37%				
541	0.34%				
3F20	1.95%				
Montan E	1.63%				
Montan OP	1.19%				
Competitor Rice wax for Montan E	1.61%				
Competitor Rice wax for Montan OP	2.10%				

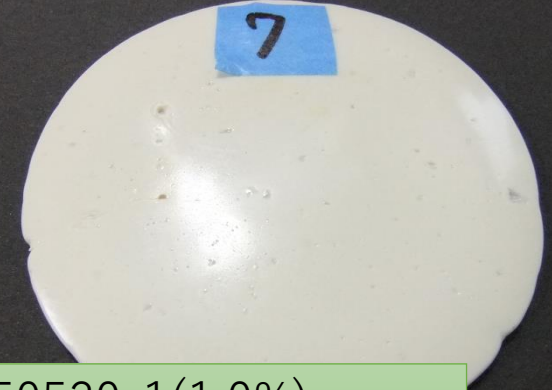
PET resin plate sample



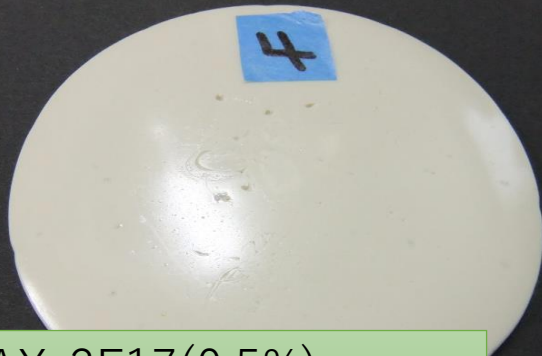
Bench mark wax
"Montan wax OP type" (1.0%)



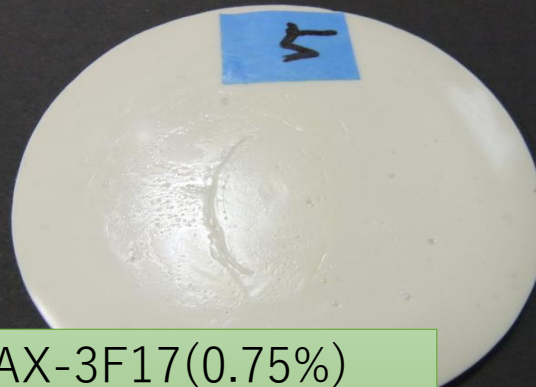
Carnauba wax (1.0%)
-Blooming : NG



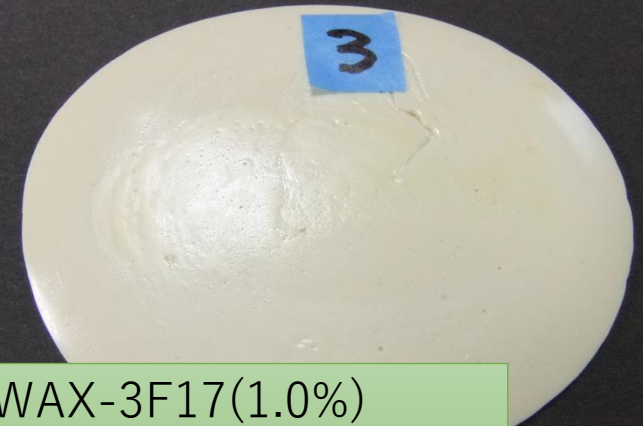
X1-050530-1(1.0%)
-Blooming : NG



TOWAX-3F17(0.5%)
-Blooming : OK

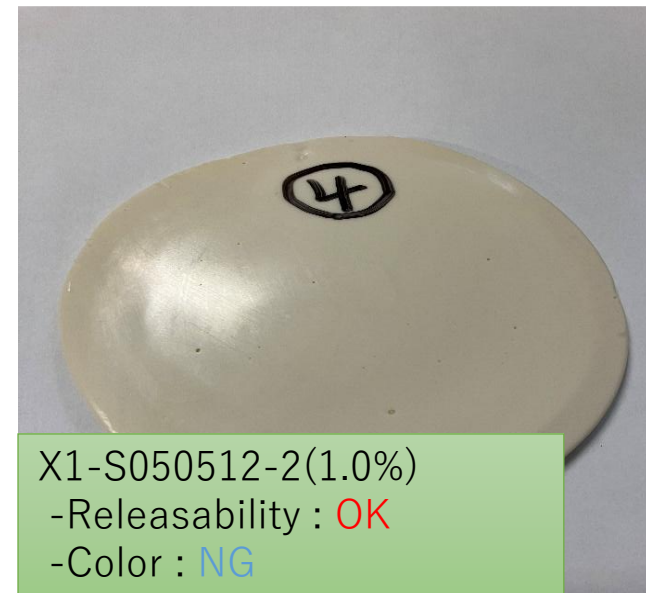
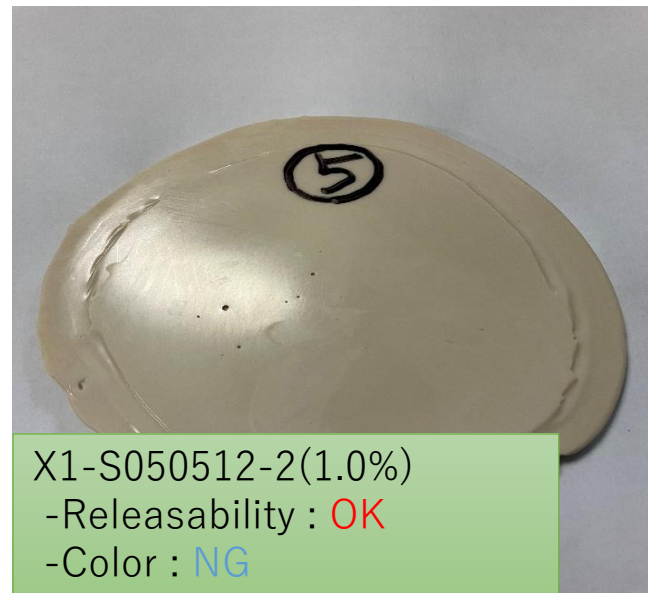
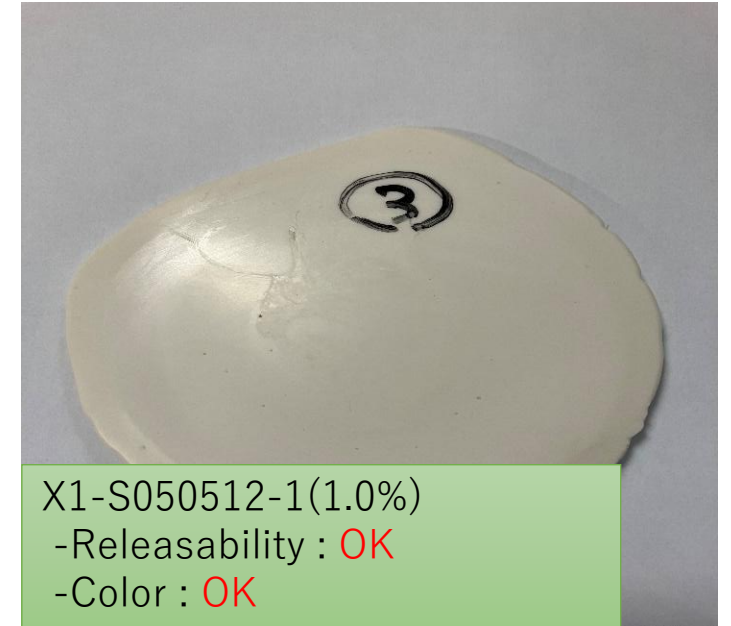
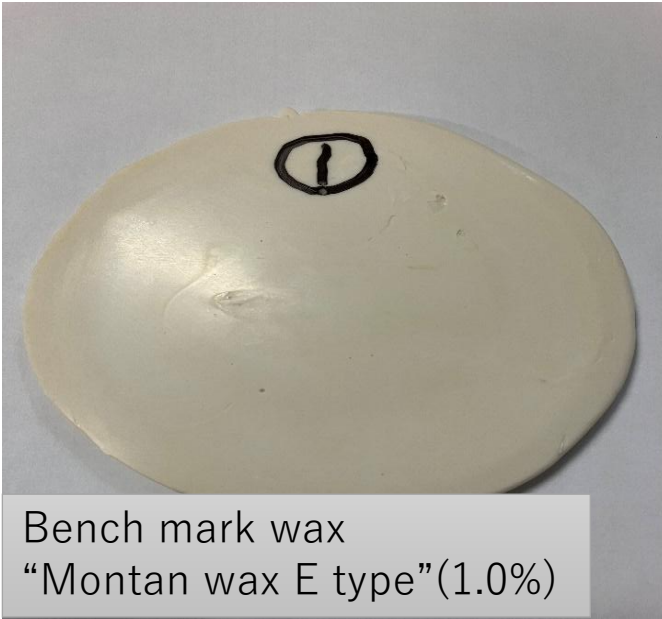


TOWAX-3F17(0.75%)
-Blooming : NG



TOWAX-3F17(1.0%)
-Blooming : NG

PBT resin plate sample



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