

Material Selection Matrix – Diafil. Unit, Sample Receiver Bottle, Rxn/Conjugation Chamber

Criteria	No Leachables ¹	Bio-compatibility ²	Gamma Compatible ³	Injection Moldable ⁴	Ultrasonic Weldable ⁵	Bondable ⁶	Machinability ⁷	Cost ⁸	Disposable ⁹	Electrostatic Surface Charge ¹⁰	DMF on File ¹¹	Tensile Strength/Weld Strength ¹²
Importance	1	1	1	1	1	1	1	1	1	1	1	1
Material												
PETG	10	10	10	8	7	8	6	7	10	8	10	9
Acrylic	10	10	9	8	8	9	1	7	10	8	10	9
ABS-Clear	10	10	6	9	8	9	6	4	10	9	10	9
K-Resin	10	10	10	9	8	9	1	8	10	9	10	9
Polystyrene	10	10	10	10	10	7	5	9	10	8	10	9
SAN	10	10	9	9	10	9	1	8	10	9	10	9
PC	10	10	9	7	9	10	10	3	10	9	10	10
COC	10	10	9	9	2	3	1	5	10	10	10	10

Sources:

1 No quantitative data

2 All available with ISO 10993 grade (from Mfg. websites)

3 Sterigenics Material Considerations – Irradiation Processing Guide

4 Based on Hantel Experience

5 From Branson, Sonitek

6 From Loctite Bonding Resource

7 Based on Hantel Experience

8 Based on Hantel Experience, Mfg. Info.

9 No vinyls in any material

10 From MatWeb

11 From FDA website

12 From MatWeb

13 Based on Hantel Experience

14 From Mfg. websites

15 From accudynetest website

16 From MatWeb

17 From MatWeb

18 From Burkle website

19 Qualitative values, no quantitative data

Material Selection Matrix – Diafil. Unit, Sample Receiver Bottle, Rxn/Conjugation Chamber

Familiarity ¹³	USP Class VI Availability ¹⁴	Surface Energy ¹⁵	Transmittance ¹⁶	Impact Strength ¹⁷	Chemical Compatibility (pH 2.7–12) ¹⁸	Low Protein Binding ¹⁹
1	1	1	1	1	10	10

9	10	8	10	9	5	7
10	10	8	10	8	4	6
8	10	9	9	9	7	8
9	10	7	10	9	6	8
9	10	9	9	6	6	7
9	10	9	10	8	7	8
10	10	8	8	10	6	8
8	10	10	10	10	9	10

Machining Overall Weighted Score
Higher Score is Better

Material	Score
PETG	285
Acrylic	241
ABS–Clear	310
K–Resin	N/A
Polystyrene	291
SAN	N/A
PC	326
COC	N/A

Molding Overall Weighted Score
Higher Score is Better

Material	Score
PETG	263
Acrylic	244
ABS–Clear	289
K–Resin	287
Polystyrene	276
SAN	299
PC	283
COC	326

Material Selection Matrix – Stir Bar Overmolding

<u>Criteria</u>	No Leachables ¹	Bio-compatibility ²	Gamma Compatible ³	Injection Moldable ⁴	Cost ⁵	Disposable ⁶	Electrostatic Surface Charge ⁷	DMF on File ⁸	Tensile Strength ⁹	Familiarity ¹⁰
<u>Importance</u>	1	1	1	1	1	1	1	1	1	1
<u>Material</u>										
UHMW	10	10	9	4	9	10	8	10	10	10
PVDF	10	10	9	9	9	7	8	10	8	9
Nylon	10	10	3	10	10	10	9	10	9	10
ETFR	10	10	9	9	4	10	9	10	9	8

Sources:

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|--|-------------------------------|---|
| 1 No quantitative data | 8 From FDA website | 15 From Burkle website |
| 2 All available with ISO 10993 grade (from Mfg. websites) | 9 From MatWeb | 16 Qualitative values, no quantitative data |
| 3 Sterigenics Material Considerations – Irradiation Processing Guide | 10 Based on Hantel Experience | |
| 4 Based on Hantel Experience | 11 From Mfg. websites | |
| 5 Based on Hantel Experience, Mfg. Info. | 12 From accudynetest website | |
| 6 No vinyls in any material | 13 Based on Client Experience | |
| 7 From MatWeb | 14 From MatWeb | |

Material Selection Matrix – Stir Bar Overmolding

USP Class VI Availability ¹¹	Surface Energy ¹²	Drug Compatibility ¹³	Low Coefficient of Friction ¹⁴	Chemical Compatibility (pH 2.7–12) ¹⁵	Low Protein Binding ¹⁶
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1	1	1	1	1	1
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10	10	10	10	10	10
10	9	10	8	8	10
10	9	10	7	6	10
10	10	10	7	9	10

Overall Weighted Score
Higher Score is Better

Material	Score
UHMW	150
PVDF	144
Nylon	143
ETFE	144