



Pre-Analytic Sample Processing
Stout C, et al., 2015

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DRUCKER MODEL 842

With BD Vacutainer™ Serum No-Additive Tube

To validate that the Drucker 842 horizontal centrifuge provides STAT separation and Serum of less than 10×10^3 platelets / μL in three (3) minutes when processing BD Vacutainer™ Serum No-Additive Red-Top Tube at 5,000 xg.

BACKGROUND

CLSI document GP44-A4 recommends following the tube manufacturer's instructions-for-use (I.F.U.), but also states that, "advancements in technology may provide for adequate specimen preparation at different speeds and times of centrifugation." Additionally, the BD tube I.F.U. states, "Use of alternate centrifugation conditions (e.g., higher RCF and shorter spin time) may also provide acceptable performance; this should be evaluated and validated by the laboratory."

The following study validates the centrifuge and tube functionality by achieving clean separation of the serum and clotted sample and platelet counts under 10×10^3 platelets / μL in three (3) minutes.

METHODS

Thirty-three (33) blood specimen were collected with BD Vacutainer™ Serum (red top) tubes and centrifuged using the Drucker Model 842 horizontal centrifuge set with the following settings:

RPM: 6,500
RCF: 5,000 xg
Time: 3 minutes
Braking: 4

The blood specimen were centrifuged one complete cycle and removed from the centrifuge within 2 minutes of the completion of the cycle. The thirty-three (33) blood specimen were analyzed for platelet count in random order after removal from the centrifuge. The platelet analyzer used was a standard Sysmex POCH 100i hematology analyzer.



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RESULTS

After collecting and centrifuging thirty-three (33) Vacutainer™ 3 mL red top tubes, each tube was inspected for proper separation and presence of hemolysis. In all cases, separation of the clot and serum properly occurred and no fibrin was visible in the serum. No hemolysis or other specimen issues were noted.

All tubes were tested for Platelet count using a POCH 100i hematology analyzer.

- The Average platelet count for the first 18 samples was 0.00×10^3 plt / uL
- The Average platelet count for the second 15 samples was 0.00×10^3 plt / uL
- The Average platelet count for all 33 samples was 0.00×10^3 plt / uL
- No outliers were noted

CONCLUSIONS

It is the professional opinion of the laboratory manager that the Drucker 842 centrifuge with horizontal rotor and the listed settings is well suited to supply STAT serum with BD Serum No-Additive red-top tubes in three (3) minutes. Due to the separation and very low platelet counts achieved while using three (3) minutes, it is feasible that a two (2) minute centrifugation time would also yield acceptable separation as well as clean serum to be used for chemistry analysis. An additional study validating a two (2) minute run time is recommended.

The test data can be found in Addendum A. The test protocol was executed under the supervision of Beth Bubb, (MT) ASCP

TEST LOCATION

Drucker Diagnostics Laboratory
200 Shadylane Drive
Philipsburg, PA 16866

EQUIPMENT

Centrifuge Model: Drucker Model 842
Rotor: 6-Place Horizontal, Performance Plus
Test Tubes: BD Vacutainer™ 13mm x 75; No-Additive SST (Red Tops)
Analyzer: POCH 100i S/N: A4263

CENTRIFUGE SETTINGS

Speed: 6,500 RPM
G-Force: 5,000 xg
Run Time: 3 minutes
Braking: 4

ADDENDUM A

TEST DATA: NOVEMBER 10

SPECIMEN #	PLATELETS x 10 ³ / uL
1	0
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	0
12	0
13	0
14	0
15	0
16	0
17	0
18	0
Average	0.00 x 10³ plt/uL

TEST DATA: NOVEMBER 13

SPECIMEN #	PLATELETS x 10 ³ / uL
19	0
20	0
21	0
22	0
23	0
24	0
25	0
26	0
27	0
28	0
29	0
30	0
31	0
32	0
33	0
Average	0.00 x 10³ plt/uL

COMBINED AVERAGE: 0.00 x 10³ plt/uL