SPECORD 250 用于血液的光度分析

摘要:

特殊浑浊样品的测试位置是紫外可见分光光度计扩大其应用领域的特殊设计。在正常的测试位置，由于高浊度样品对光散射这一特性，光通过样品时会被散射掉一部分，从而给出错误的测量结果。但特殊浑浊样品的测试位置，由于它位于检测器的正前方，紧靠检测器，能很好的减少光散射对测试结果的影响，广泛运用于高浊度液体的光度分析，如浑浊水样，血液等的光度分析。

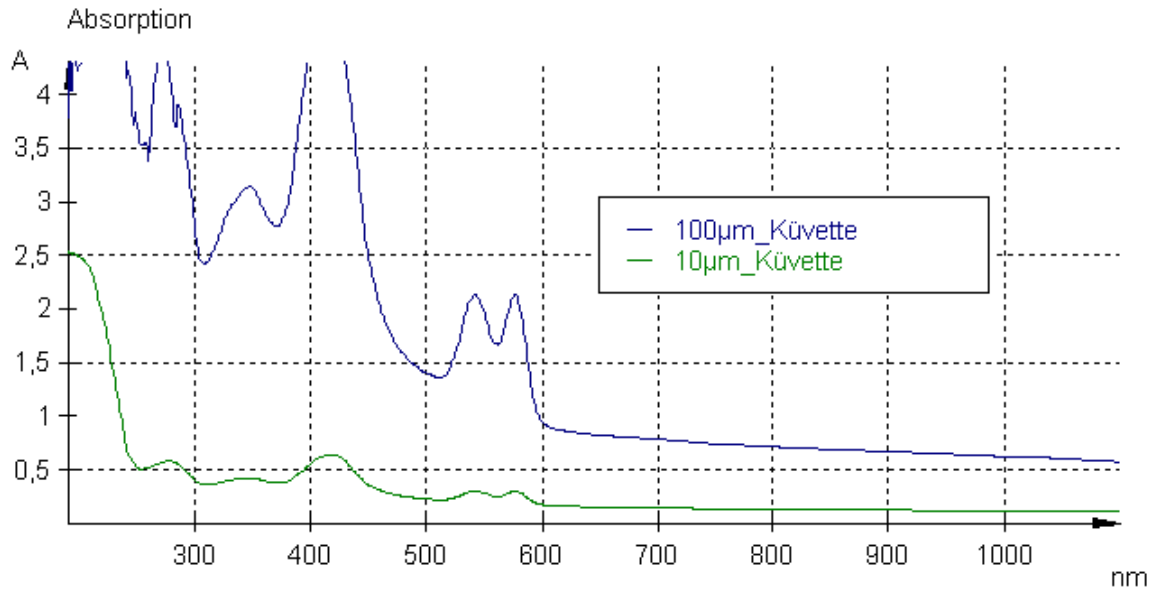
本文使用德国耶拿公司 specord 250 紫外可见分光光度计，采用仪器提供的特殊浑浊样品的测试位置，对血液进行光度分析，获得了良好的测试结果。此外，实验还研究了 10μm 和 100μm 涂层厚度的两种石英试管。研究发现，使用含 10μm 涂层厚度的石英试管血液中的血红蛋白在 542 nm 和 577 nm 有很低吸收值，而使用含 100μm 涂层厚度的石英试管比正常的测试位置测试背景吸收显著减少 (如波长超过 600nm 时，吸收值在正常测试位置大约 0.7A 吸光度，而在浑浊测试位置仅约 0.1 A 吸光度)。所以， 使用含 100μm 涂层厚度的石英试管更适合血液的光度分析。

Photometric analysis of blood in SPECORD® 250

As a result of its light scattering properties, the photometric analysis of blood represents a special application. The light scattered by the turbidity of the sample falsified the measurement results. For such measurements, there are special positions in SPECORD® for turbid samples located in the sample volume directly in front of the radiation receiver.

The blood samples were measured using 2 different cuvettes with separable window plates, with 10 µm and 100 µm coating thicknesses. The cuvette units consist of two separable quartz window plates. These are anchored in a holder used for this purpose. The outer dimensions of a cuvette are obtained and no special cuvette holder is required. The following parameter settings were made:

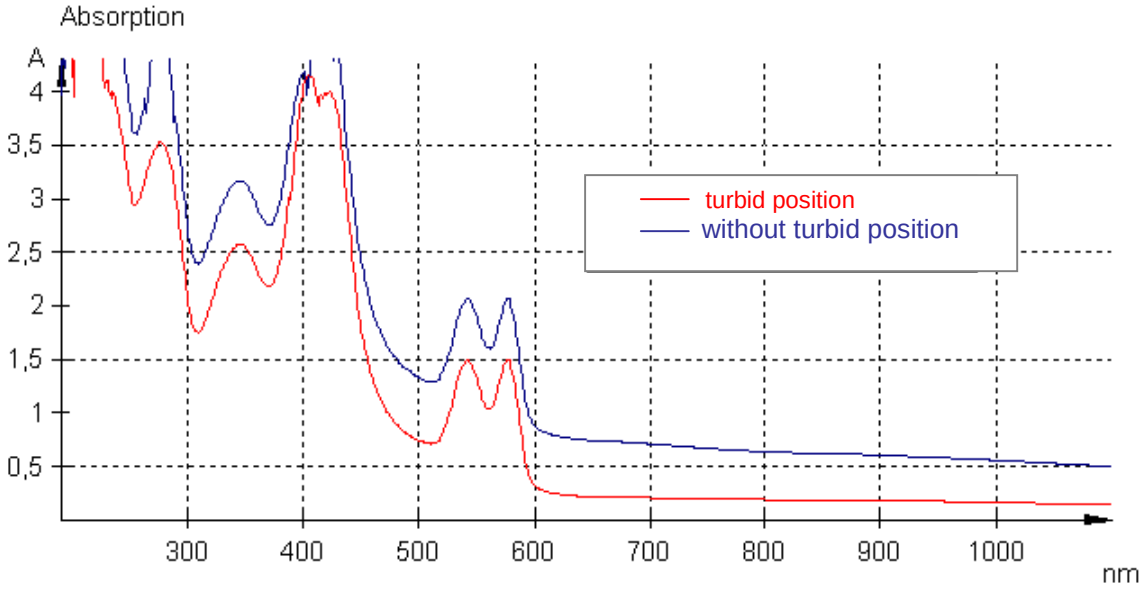
Cycle:	none	**Measurement mode:**	registration
Correction:	reference	**Range [nm]:**	190-1100
Display:	absorption	**Step width [nm]:**	1
Lamp changeover:	320 nm	**Integration time [s]**	0.02
Slit:	2 nm	**Accessories**	none



It may be observed that the quartz cuvette with 100 µm coating thickness is better suited for this measurement. The absorption of haemoglobin in blood at 542 nm and 577 nm is very

low with a 10 µm coating thickness. For this reason, further work was the carried out with a 100 µm coating thickness.

The measurements with a 100 µm coating thickness were then carried out with the same parameter settings in the turbid sample position.



The absorption of the sample background in the turbid sample position compared with the normal position was significantly reduced by eliminating the stray light (e.g. absorption above 600 nm in the normal position approx. 0.7 A and in the turbid position approx. 0.1 A). The holder openings in front of the radiation receiver for strongly scattering samples are therefore very well suited for the measurement of blood.

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