Both calcium pyrophosphate and monosodium urate can assume needle-like shapes and may appear identical when viewed with uncompensated polarized light. Therefore, when needle-like crystals are encountered in a body fluid specimen, it is important to employ an additional diagnostic tool to separate these two entities. A first order red plate compensator is usually sufficient for these purposes.

A potential problem with this approach, particularly when examining synovial fluid, is to distinguish both of these important crystals from crystals present due to injection of intra-articular steroids as a therapeutic measure. Depending on the preparation, these crystals, which may form needles, may be either positively or negatively birefringent. Steroid crystals can be found for up to two weeks after injection. In occasional cases, steroid injections are associated with an increase in joint pain referred to as “steroid flare.” Since a recognized complication of joint space injection is a septic arthritis, this may prompt a re-aspiration of the joint.

Other crystals that may be encountered in body fluids (such as hematin, starch, oxalate, cholesterol, lipids) have unique distinguishing features of shape or color and can be identified using ordinary polarization techniques. Therefore, while the red plate need only be used when needle-like crystals are observed, use of this tool alone is not completely reliable. It is very important to determine if there is a history of intra-articular steroid injection; for, if that is the case, the crystals may well be an artifact of therapeutic intervention and not of unique diagnostic importance. If this history is unavailable, it may be prudent to include a qualifying interpretive comment in the report.