



Urine Microscopy Parameters

In cells/ μ L and in cells/HPF

Urine Microscopy Parameters in cells/ μ L

| Measured Parameter | | Clinical Significance | Negative in N/ μ L | Low in N/ μ L | Medium in N/ μ L | High in N/ μ L | Very High in N/ μ L |
|--------------------|--------------------------------------|--|---------------------------|--|-------------------------|-----------------------|----------------------------|
| Blood Cells | Red Blood Cells (RBC) | Urinary tract disease or bleeding (inflammation, infection, stones, tumors, etc.) | 0-25 | 25-100 | 100-500 | >500 | |
| | Leukocytes (WBC) | Inflammation or infection in the urinary tract (pyelonephritis, cystitis, etc.) | 0-15 | 15-30 | 30-100 | 100-250 | >250 |
| Epithelial Cells | Squamous Epithelial Cells (SEC) | Often due to poor sample collection | 0-5 | 5-25 | 25-50 | 50-100 | >100 |
| | Non-squamous Epithelial Cells (nSEC) | Increased number may indicate urinary tract inflammation, infection, kidney stones, or renal tubular disease | 0-5 | 5-25 | 25-50 | 50-100 | >100 |
| Crystals | Calcium Oxalate Dihydate (COD) | Causes and likelihood of stones, clinical significance depends on their type and quantity | 0-5 | 5-30 | 30-105 | 105-250 | >250 |
| | Struvite (STR) | | 0-5 | 5-30 | 30-105 | 105-250 | >250 |
| | Unclassified Crystals (UNC) | | 0-5 | 5-30 | 30-105 | 105-250 | >250 |
| | | | Negative in N/ μ L | Presence (suspicion of abnormality) unit/ μ L | | | |
| Casts | Hyaline Cast (HYC) | Might not be significant in lower numbers, can be present when taking medications that affect the kidney | 0 | >1 | | | |
| | Non-hyaline Cast (nHYC) | Suggests renal conditions such as glomerulonephritis or pyelonephritis and chronic renal failure | 0 | >1 | | | |
| Bacteria | BAC | Suspected bacteria infection | Negative | Suspected Presence | | | |

Sources

Rizzi, T. (2014, May). Urinalysis in Companion Animals, Part 2: Evaluation of Urine Chemistry & Sediment. Retrieved from Today's Veterinary Practice: <https://todaysveterinarypractice.com/clinical-pathology/urinalysis-in-companion-animals-part-2-evaluation-of-urine-chemistry-sediment/>; Williams, K., Ruotsalo, K., & Tant, M. S. (2024, 05 22). Urinalysis - vca animal hostpitals. Retrieved from vca animal hospitals: <https://vcahospitals.com/know-your-pet/urinalysis>; Yadav, S. N., Ahmed, N., Nath, A. J., Mahanta, D., & Kalita, M. K. (2020). Urinalysis in dog and cat: A review. Veterinary World, 2133-2141.

Urine Microscopy Parameters in cells/HPF

| Measured Parameter | | Clinical Significance | Negative in N/HPF | Low in N/HPF | Medium in N/HPF | High in N/HPF | Very High in N/HPF |
|--------------------|--------------------------------------|--|----------------------|--|--------------------|------------------|-----------------------|
| Blood Cells | Red Blood Cells (RBC) | Urinary tract disease or bleeding (inflammation, infection, stones, tumors, etc.) | 0-5 | 5-25 | 25-100 | >100 | |
| | Leukocytes (WBC) | Inflammation or infection in the urinary tract (pyelonephritis, cystitis, etc.) | 0-3 | 3-6 | 6-20 | 20-50 | >50 |
| Epithelial Cells | Squamous Epithelial Cells (SEC) | Often due to poor sample collection | 0-1 | 1-5 | 5-10 | 10-20 | >20 |
| | Non-squamous Epithelial Cells (nSEC) | Increased number may indicate urinary tract inflammation, infection, kidney stones, or renal tubular disease | 0-1 | 1-5 | 5-10 | 10-20 | >20 |
| Crystals | Calcium Oxalate Dihydrate (COD) | Causes and likelihood of stones, clinical significance depends on their type and quantity | 0-1 | 1-6 | 6-21 | 21-50 | >50 |
| | Struvite (STR) | | 0-1 | 1-6 | 6-21 | 21-50 | >50 |
| | Unclassified Crystals (UNC) | | 0-1 | 1-6 | 6-21 | 21-50 | >50 |
| | | | Negative in N/LPF | Presence (suspicion of abnormality) in unit/LPF | | | |
| Casts | Hyaline Cast (HYC) | Might not be significant in lower numbers, can be present when taking medications that affect the kidney | 0 | >1 | | | |
| | Non-hyaline Cast (nHYC) | Suggests renal conditions such as glomerulonephritis or pyelonephritis and chronic renal failure | 0 | >1 | | | |
| Bacteria | BAC | Suspected bacteria infection | Negative | Suspected Presence | | | |

Sources

Rizzi, T. (2014, May). Urinalysis in Companion Animals, Part 2: Evaluation of Urine Chemistry & Sediment. Retrieved from Today's Veterinary Practice: <https://todaysveterinarypractice.com/clinical-pathology/urinalysis-in-companion-animals-part-2-evaluation-of-urine-chemistry-sediment/>; Williams, K., Ruotsalo, K., & Tant, M. S. (2024, 05 22). Urinalysis - vca animal hospitals. Retrieved from vca animal hospitals: <https://vcahospitals.com/know-your-pet/urinalysis>; Yadav, S. N., Ahmed, N., Nath, A. J., Mahanta, D., & Kalita, M. K. (2020). Urinalysis in dog and cat: A review. Veterinary World, 2133–2141.