Sulfonated Asphalt Drilling Fluids Lab Qualification & Procurement Checklist

Use this form to compare suppliers, qualify concentration and release batches for water-, oil- or synthetic-based drilling fluids. Define every test condition; a product name or generic COA is not sufficient.

1. Define the application

■ Mud system identified: freshwater WBM / KCl-polymer / seawater-saltwater / inhibitive WBM / OBM / SBM / other.

■ Primary objective identified: shale recovery / API filtration / HTHP filtration / filter-cake quality / lubricity / microsealing.

■ Formation information recorded: shale mineralogy, permeability, pore/fracture scale, expected contaminants and instability mechanism.

■ Test temperature, pressure, hot-roll time, mud density, salinity, hardness and solids loading defined.

2. Product identity and chemical specification

Parameter	Required limit / range	Method and basis	Supplier / COA	Pass
Product / grade / counter-ion				■
Appearance and physical form				■
Moisture				■
Water-soluble or dispersible fraction				■
Oil-soluble / asphaltic fraction				■
pH of defined dispersion				■
Sulfonate or sulfur-related parameter				■
Particle size / sieve residue				■
Bulk density				■
Other critical impurity / residue				■

3. Test-fluid design

■ Base-fluid recipe and mixing order are fixed and documented.

■ Blank and at least three sulfonated-asphalt concentrations are included.

■ Actual makeup water or representative brine and contaminants are used.

■ All fluids receive the same mixing energy, rest time and hot-rolling history.

■ Replicates and acceptance statistics are defined for critical tests.

4. Treatment conversion

Treatment	Metric equivalent	Batch amount / volume	Selected
3 lb/bbl	8.56 kg/m3		■
4 lb/bbl	11.41 kg/m3		■
6 lb/bbl	17.12 kg/m3		■
Other	lb/bbl x 2.853 = kg/m3		■

5. Performance qualification

Test	Conditions	Blank	Treated result	Requirement	Pass
API filtration and cake					■
HTHP filtration and cake					■
PPA / plugging test					■
PV / YP / low-shear readings					■
10 s / 10 min / 30 min gels					■
Hot-roll shale recovery					■
Linear swelling / dispersion					■
Lubricity coefficient					■
Foam / entrained air					■
Screenability / residue					■
Salt and hardness tolerance					■
OBM/SBM electrical stability					■

6. Supplier and delivery controls

■ Current TDS, SDS, representative COA and commitment to batch-specific COA received.

■ Manufacturer, production site, grade code, country of origin and lot traceability confirmed.

■ Written notification required before feedstock, process, counter-ion, soluble fraction, particle size, packaging or test-method changes.

■ Packaging, inner liner, palletization, net weight and moisture protection approved.

■ Complaint, retained-sample and independent-test procedure agreed.

7. Receiving and release

Check	Acceptance evidence	Status
Identity and seals	Product, grade, lot, seal and documents match the purchase order	■
Bag / package condition	Dry, intact, no hard caking, water ingress or foreign material	■
Quantity	Net weight and package count reconciled	■
Risk-based chemistry	Moisture, pH, soluble fraction and sieve residue meet limits	■
Reference-mud verification	Critical filtration, rheology and shale tests meet approved control range	■
Retention sample	Representative sample sealed, labeled and stored under chain of custody	■

8. Red flags - stop and investigate

Red flag	Why it matters
Only 'water solubility' is reported	Method, brine, temperature and separation procedure may differ; values may not be comparable.
HTHP result has no test conditions	Temperature, pressure, cell and medium determine the result.
Product lowers filtrate but sharply raises rheology	The apparent benefit may increase ECD, pump pressure or solids-management risk.
Supplier changes site or formulation without notice	Soluble fraction, particle size and reference-mud performance can change.
Severe lost circulation is treated only with sulfonated asphalt	Whole-mud losses require diagnosis, sized LCM and/or pressure management.
Environmental acceptability is claimed without local data	Discharge approval and bioassay are product- and jurisdiction-specific.

Approval record: Supplier _____ Grade _____ Lot / trial _____ Selected concentration _____ Reviewer _____ Date _____