MINERAL MATERIALS FOR ANIMAL NUTRITION

Three mineral profiles built for different formulation jobs: calcium-first, ruminant sulfur-focused, and multi-macromineral flake applications.

FOR FEED MILLS, PREMIX MANUFACTURERS, AND POULTRY, SWINE AND RUMINANT LIVESTOCK OPERATIONS

Mineral Tech offers three mineral ingredients with deliberately different macromineral profiles. **SB-1** is our high-calcium, low-salt option. **SMC-1** contains calcium together with more sulfur and magnesium. **3x Flakes** combine calcium, magnesium, sodium and chloride in a manufactured flake.

PRODUCT	PRIMARY JOB	WHERE IT COULD HELP
SB-1	High calcium, low salt, other trace minerals	When calcium is needed along with additional minerals and low salt content.
SMC-1	Calcium + sulfur + magnesium + trace minerals	Programs where sulfur and calcium are both needed (e.g. ruminants).
3x Flakes	Calcium + magnesium + sodium + chloride + trace minerals	When you need a broader mineral profile, plus salt in a manufactured flake.

Current lot analyses available | Samples available for technical evaluation | Commercial-scale supply

411 W 7200 S #103, Midvale, UT 84047 | (801) 995-9503 | MineralTechHoldings.com

START WITH THE FEED FORMULATION JOB

WHERE TO CONSIDER USING OUR PRODUCTS

Mineral Tech products give nutritionists and formulators **different mineral profiles for different ration supplementation**. They may fit into mineral premixes, complete feeds, or custom supplements when additional calcium, magnesium, sulfur, sodium, or chloride are needed.

POTENTIAL FORMULATION USE	PROFILE TO EVALUATE	WHY IT MAY FIT
Layer / breeder feed supplement	SB-1	Highly soluble, higher calcium with additional minerals and very little Na/Cl; useful when more than calcium is needed with other minerals.
Grain-based swine feed supplement	SB-1 or 3x	SB-1 for high-calcium inclusion; 3x when you want calcium and salt to come from the same ingredient.
Beef / dairy concentrate diets	SB-1	Grain and many concentrates are low in calcium relative to phosphorus; SB-1 can be evaluated as a calcium-bearing ingredient
Ruminant urea / NPN programs	SMC-1	Sulfur supports rumen microbial synthesis of sulfur-containing amino acids; SMC-1 adds Ca + S + Mg with low salt
Custom mineral supplements	3x Flakes	A combined Ca + Mg + Na + Cl profile in a manufactured flake with high palatability.

Nutrition applications on this page are based on public Extension and veterinary nutrition guidance; product composition is based on the August 2026 Ward feed analyses. Final inclusion and species/life-stage fit require nutritionist review.

SB-1

HIGH-CALCIUM PROFILE WITH LOW SALT

A natural mineral ingredient for feed formulations that need a strong calcium contribution without bringing much sodium or chloride.

23.50% Ca | **0.12%** Na | **0.00%** reported salt

Potential fit: layers, dairy, beef and small-ruminant mineral programs

Analytical values reflect tested samples. Final inclusion decisions should be made by a qualified nutritionist.

SB-1 is the high-calcium option in the Mineral Tech line. That matters because cereal grains and many concentrate ingredients are naturally low in calcium, while layer feeds, grain-based swine diets and concentrate-heavy cattle programs often need an added calcium source. SB-1 supplied 23.50% Ca together with 0.63% Mg, 0.30% S, 0.16% K and measured Fe, Mn, Zn, Cu and Mo, while P, Na and Cl remained very low.

23.50%	0.63%	0.30%	5
CALCIUM	MAGNESIUM	SULFUR	TRACE MINERALS

BENEFITS

- **Targets a common calcium gap.** Grain-heavy livestock diets frequently need supplemental calcium; in laying hens, calcium demand is especially high because of eggshell formation.
- **Preserves the sodium/chloride budget.** The sample contained only 0.12% sodium and reported 0.00% chloride, useful when you want calcium without automatically adding salt.
- **Useful across several formulation types.** The profile can be evaluated as a layer and breeder feed supplement, swine grain/soy formulas, beef or dairy concentrate supplements, and custom mineral blends.
- **Trace element inclusion.** Iron, manganese, zinc, copper and molybdenum are all parts of the package.

WHERE IT MAY FIT

- Layer and breeder mineral packages
- Grain/soy swine formulas needing supplemental calcium
- Beef or dairy concentrate diets where Ca:P needs correction
- Premixes and supplements where sodium/chloride are supplied separately

Product values: Ward Lab ID 4641, August 2026. Nutrition context: Oklahoma State University Extension on grain/concentrate calcium balance; Oregon State University Extension on layer calcium; Oklahoma State University Extension on swine mineral formulation. Digestive calcium bioavailability has not been established for SB-1; final inclusion and regulatory fit require qualified nutritionist review.

SMC-1 has combined 19.60% calcium with 2.92% sulfur and 1.08% magnesium while contributing very little sodium or chloride. In ruminants, sulfur is not just another number on a mineral panel: rumen microorganisms use sulfur to synthesize sulfur-containing amino acids and other compounds, and supplemental sulfur may be considered when urea or other nonprotein-nitrogen sources replace natural protein.

19.60%	2.92%	1.08%	0.06%
CALCIUM	SULFUR	MAGNESIUM	SODIUM

BENEFITS

- **A real ruminant sulfur application.** Public beef-nutrition guidance specifically identifies sulfur supplementation as a consideration in urea/NPN programs that contain little natural protein.
- **Calcium and magnesium come with it.** SMC-1 contributes Ca and Mg alongside sulfur, giving you a multi-macromineral ingredient rather than a sulfur-only input.
- **Low salt lets you make inclusion decisions.** At 0.06% sodium and 0.02% chloride as received, the tested material lets you add salt elsewhere in the mineral package.

WHERE IT MAY FIT

- Beef and dairy mineral supplements using urea/NPN
- Ruminant programs where the basal diet is low in sulfur
- Custom Ca + S + Mg mineral packages
- Sheep/goat formulations only after species-specific mineral review

Product values: Ward Lab ID 4642, August 2026. Nutrition context: Oklahoma State and University of Missouri Extension guidance on sulfur use in ruminants and urea/NPN programs. Total dietary sulfur must account for forage, feed and water; Extension guidance commonly cites about 0.4% of diet dry matter as a maximum tolerable concentration for cattle. SMC-1 is not a stand-alone high-magnesium grass-tetany mineral.

3x is manufactured from approximately 45% mined mineral-rich grit, 45% decomposed brine-shrimp farm oolitic remnants and 10% Great Salt Lake brine binder. The August 2026 feed analysis measured 14.74% calcium, 2.50% magnesium, 0.62% sulfur, 3.34% sodium and 3.73% chloride (6.15% calculated salt) as received. That makes 3x most interesting when a formula needs several of those macrominerals at the same time.

14.74%	2.50%	3.34%	3.73%
CALCIUM	MAGNESIUM	SODIUM	CHLORIDE

BENEFITS

- **Several macrominerals arrive together.** One ingredient has calcium, magnesium, sodium, chloride and sulfur.
- **Sodium and chloride have real nutritional jobs.** Pigs, poultry and ruminants all require Na and Cl; salt is routinely added to feeds and mineral supplements. 3x can contribute to that requirement while also supplying Ca and Mg.
- **The highest magnesium of the three profiles.** At 2.50% Mg as received, 3x contributes more magnesium than SB-1 or SMC-1.
- **A different physical form.** The manufactured flake gives feed mills a non-powder mineral format to evaluate for flow, mixing and segregation in their own equipment.

WHERE IT MAY FIT

- Custom beef/dairy mineral blends where Ca + Mg + salt all fit
- Swine supplementation where both Ca and Na/Cl are needed.
- Poultry/layer mineral packages when sodium/chloride contribution fits the formula
- Feed-mill handling trials where a flake is preferable to another fine powder

Product values: Ward Lab ID 4643, August 2026; formulation description from Mineral Tech product materials. Nutrition context: Oklahoma State/University of Minnesota swine guidance, beef mineral guidance and Poultry Extension. 3x is not a complete mineral premix or a complete salt source. The current sample also contained measurable iron, arsenic, cadmium and lead; current-lot COA, total-ration mineral exposure and regulatory review are required before feed use.

LET'S FIND THE RIGHT FIT

The best way to evaluate these products is to compare them with the mineral ingredients already in the formula. If a profile can cover part of more than one real nutrient target, it may earn a place. If it cannot, a conventional single-purpose mineral source may still be the better choice.

RATION / FORMULATION SITUATION	FIRST PROFILE TO MODEL	WHAT MAKES IT DIFFERENT
Only need concentrated Ca at lowest cost	Feed-grade limestone	Feed if Calcium is the only mineral needed.
Want calcium from a broader measured mineral matrix	SB-1	23.50% Ca plus measurable Mg, S and Fe/Mn/Zn/Cu/Mo. Best for adding other minerals along with calcium.
Need Ca + sulfur in a low-S ruminant formula	SMC-1	One ingredient can cover part of both a calcium addition and a sulfur addition, with additional Mg.
Ruminant mineral package needs Ca + S + some Mg	SMC-1	Dual-purpose profile.
Formula needs Ca + Mg + Na/Cl together	3x Flakes	Five macrominerals in one flake with additional sodium and chloride.
Feed mill wants to evaluate a non-powder mineral format	3x Flakes	Manufactured flake gives the plant a distinct physical form to test for mixing, flow and segregation.
Sulfur is already high	SB-1; SMC-1	High-S feeds or sulfate-rich water can make additional sulfur undesirable; SB-1 or 3x Flakes may be a better choice.

MINERAL TECH HOLDINGS

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INDEPENDENT NUTRITION CONTEXT USED IN THIS PACKET

WHY THESE PROFILES CAN MATTER IN REAL RATIONS

Animal-nutrition research shows how these nutrients may support production.

1	**Oklahoma State University Extension - Vitamin and Mineral Nutrition of Grazing Cattle** Grain-based cattle diets can be low in calcium relative to phosphorus, making calcium balance important. Sulfur supports rumen microbial function but must be controlled because excess sulfur can be harmful.
2	**Oklahoma State University Extension - Formulating Swine Rations** Typical grain-soy swine diets usually require supplemental calcium, while sodium and chloride are commonly supplied through salt. Having both together in one supplement reduces separate buying load.
3	**Oregon State University Extension - How to Feed Your Laying Hens** Laying hens need high dietary calcium because large amounts are used for eggshell formation. Commercial layer feeds commonly contain about 3% to 4% calcium to support shell quality and protect body calcium reserves.
4	**University of Missouri Extension - Mineral Supplements for Beef Cattle** Sulfur is used by rumen microbes and can be particularly important in diets containing nonprotein nitrogen such as urea. However, total dietary sulfur must be carefully managed because excessive levels can create health problems.
5	**University of Nebraska-Lincoln Beef - Going to Grass: Preventing Grass Tetany with Magnesium Supplementation** Magnesium is especially important for grazing and lactating cattle because inadequate intake can contribute to grass tetany. Mineral programs commonly balance magnesium with salt and other required minerals.
6	**Poultry Extension - Basic Poultry Nutrition** Poultry diets need calcium, magnesium, sodium, chloride and other minerals because grain ingredients alone do not provide a complete mineral profile. These nutrients support skeletal development, eggshell formation, electrolyte balance and normal metabolism.
7	**University of Minnesota Extension - Formulating Farm-Specific Swine Diets** Swine mineral requirements change with age, weight and production stage, so calcium, phosphorus, sodium and chloride must be balanced within the complete ration. The value of a mineral ingredient depends on how its full nutrient profile fits the specific diet.

Important formulation note: all three Ward samples contained substantial iron relative to ordinary trace-mineral requirements. In ruminants, high total dietary iron can reduce copper status. Treat naturally occurring trace elements as part of the total-ration mineral load and qualify them with the complete diet, not as a stand-alone selling claim.

SB-1 LABORATORY ANALYSIS

Ward Laboratories Feed Analysis Report, Lab ID 4641, reported August 13, 2026

ANALYSIS	AS RECEIVED	DRY BASIS
Moisture, %	1.24	0.00
Dry Matter, %	98.76	100.00
Calcium, % Ca	23.50	23.79
Phosphorus, % P	0.03	0.03
Potassium, % K	0.16	0.16
Magnesium, % Mg	0.63	0.64
Sulfur, % S	0.30	0.30
Sodium, % Na	0.12	0.12
Chloride, % Cl	0.00	0.00
Salt, % NaCl	0.00	0.00
Copper, ppm Cu	4.4	4.5
Iron, ppm Fe	4,211	4,264
Manganese, ppm Mn	85	86
Molybdenum, ppm Mo	0.97	0.99
Zinc, ppm Zn	9.1	9.3
Total Arsenic, ppm As	5.999	6.074
Total Cadmium, ppm Cd	0.186	0.188
Total Lead, ppm Pb	4.229	4.282

Values reflect the specific submitted sample. Review a current lot Certificate of Analysis, complete ration, intended species/life stage and applicable feed-control requirements before formulation.

SMC-1 LABORATORY ANALYSIS

Ward Laboratories Feed Analysis Report, Lab ID 4642, reported August 13, 2026

ANALYSIS	AS RECEIVED	DRY BASIS
Moisture, %	17.00	0.00
Dry Matter, %	83.00	100.00
Calcium, % Ca	19.60	23.62
Phosphorus, % P	0.02	0.02
Potassium, % K	0.12	0.14
Magnesium, % Mg	1.08	1.30
Sulfur, % S	2.92	3.52
Sodium, % Na	0.06	0.08
Chloride, % Cl	0.02	0.02
Salt, % NaCl	0.03	0.03
Copper, ppm Cu	6.9	8.3
Iron, ppm Fe	3,915	4,717
Manganese, ppm Mn	83	100
Molybdenum, ppm Mo	0.56	0.68
Zinc, ppm Zn	7.7	9.2
Total Arsenic, ppm As	9.846	11.863
Total Cadmium, ppm Cd	0.095	0.115
Total Lead, ppm Pb	3.381	4.074

Values reflect the specific submitted sample. Review a current lot Certificate of Analysis, complete ration, intended species/life stage and applicable feed-control requirements before formulation.

3X FLAKES LABORATORY ANALYSIS

Ward Laboratories Feed Analysis Report, Lab ID 4643, reported August 13, 2026

ANALYSIS	AS RECEIVED	DRY BASIS
Moisture, %	9.22	0.00
Dry Matter, %	90.78	100.00
Calcium, % Ca	14.74	16.24
Phosphorus, % P	0.05	0.05
Potassium, % K	0.31	0.35
Magnesium, % Mg	2.50	2.75
Sulfur, % S	0.62	0.69
Sodium, % Na	3.34	3.67
Chloride, % Cl	3.73	4.11
Salt, % NaCl	6.15	6.78
Copper, ppm Cu	10.5	11.6
Iron, ppm Fe	5,621	6,192
Manganese, ppm Mn	247	272
Molybdenum, ppm Mo	1.49	1.64
Zinc, ppm Zn	29.2	32.1
Total Arsenic, ppm As	11.998	13.217
Total Cadmium, ppm Cd	0.387	0.426
Total Lead, ppm Pb	16.059	17.690

Values reflect the specific submitted sample. Review a current lot Certificate of Analysis, complete ration, intended species/life stage and applicable feed-control requirements before formulation. The measured sodium, chloride, arsenic, cadmium and lead values are especially important to include in total-ration qualification.