GENERAL DESCRIPTION OF GILSONITE IN OIL AND GAS

GILSONITE IN OIL AND GAS WELL CEMENTING IS A HIGHLY DEVELOPED TECHNOLOGY. CEMENT-WATER SLURRIES, WITH OR WITHOUT VARIOUS ADDITIVES, HAVE BEEN USED FOR MANY YEARS IN CEMENTING PROCEDURES CARRIED OUT FROM TIME TO TIME DURING THE DRILLING OF AND THE PRODUCTIVE LIFE OF A WELL. CEMENTING IS OFTEN APPLIED DURING DRILLING AND COMPLETION PROCEDURES IN CONNECTION WITH PROTECTION OF PRODUCTION ZONES, ISOLATION AND CONFINEMENT OF WATER ZONES, SUPPORT OF BORE HOLE WALL, ANCHORAGE OF CASING, AND CONTROL OF LOST CIRCULATION NOT OVERCOME BY METHODS ASSOCIATED WITH THE CIRCULATION OF DRILLING MUD. SUCH CEMENTING PROCEDURES BY GILSONITE ADDITIVES ARE ORDINARILY REGARDED AS BEING OF PRIMARY CHARACTER.

PARTICLE SIZE OF GILSONITE IN OIL AND GAS

PARTICLE SIZE AND PARTICLE SIZE DISTRIBUTION OF THE GILSONITE DETERMINE THE STRENGTH AND POROSITY-PERMEABILITY CHARACTERISTICS OF THE SET CEMENT FOR ANY GIVEN MIX RATIO. WHERE MAXIMUM STRENGTH IS DESIRABLE, A COARSE GILSONITE WHERE LIGHTEST WEIGHT AND LOWEST POROSITY-PERMEABILITY ARE IMPORTANT AND STRENGTH IS TO BE SACRIFICED OR IS OF LITTLE IMPORTANCE, AN AGGREGATE OF MINUS 50 MESH OR FINER MAY BE USED.

SELECT OF GILSONITE USE IN OIL AND GAS

GILSONITE SHOULD BE REALIZED THAT THERE ARE VARIOUS CLASSES WITH RESPECT TO MELTING POINTS. THE LOWER THE MELT POINT, THE FASTER THE GILSONITE WILL DISSOLVE IN A SOLVENT THEREFOR OR SOFTEN UNDER CONDITIONS OF HEAT. THEREFORE, THE USE
OF GILSONITE IN AN OIL AND GAS WELL CEMENTING COMPOSITION AFFORDS AN OPPORTUNITY TO SELECT A CLASS OF THAT MATERIAL WHICH BEST SERVES THE PARTICULAR PURPOSE.

THE HEAT SOFTENING CHARACTERISTIC OF GILSONITE BECOMES OF PARTICULAR IMPORTANCE IN INSTANCES OF RELATIVELY HIGH BOTTOM HOLE TEMPERATURES, WHERE THERE IS A TENDENCY FOR THE GILSONITE TO

SOFTEN AND DIFFUSE INTO THE SURROUNDING CEMENT.

USES OF GILSONITE IN OIL AND GAS:

WITH BLENING OF GILSONITE WITH OTHER DRILLING MUX ADDITIVES INCREASE PERFORMANCE IN CEMENTING AND DRILLING FLUIDS IN A WAY NO OTHER SINGLE ADDITIVE CAN.

GILSONITE, THE RECOGNIZED INDUSTRY STANDARD FOR FILTRATION CONTROL, IS EQUALLY EFFECTIVE AT CONTROLLING LOST CIRCULATION AND IMPROVING WELLBORE STABILITY.

GILSONITE HAS SIGNIFICANT HEALTH, SAFETY AND ENVIRONMENTAL (HSE) ADVANTAGES OVER SYNTHETIC PRODUCTS.

- NON-TOXIC
- NON-CARCINOGENIC
- NON-MUTAGENIC

CEMENTING ADVANTAGE

- STRENGTHENS CEMENT BONDS TO SHALES AND SANDS
- REDUCES CEMENT SLURRY DENSITY
- PREVENTS LOST CIRCULATION
- SUPPORTS COMPRESSIVE STRENGTH DEVELOPMENT

DRILLING FLUIDS ADVANTAGE

- PROVIDES SUPERIOR SHALE STABILIZATION
- PREVENTS DIFFERENTIAL STICKING
- REDUCES OR ELIMINATES LOST CIRCULATION
- PROVIDES WELLBORE STRENGTHENING MATRIX

FORMULA OF MIXTURE

Formulation with Gilsonite

Sample identification	Base	Base + Liquid Shale Treatment
Fresh water, bbl	0.85	0.82
Wyoming bentonite, lb	12	12
Low molecular weight PHPA, lb	1	1
Synthetic polymeric deflocculant, lb	1	1
Low viscosity polyanionic cellulose, lb	1	1
Potassium chloride, lb	2	2
Potassium hydroxide, lb	0.5	0.5
Barite, lb	221	221
Gilsonite, vol%		3
Hot rolled at 150°F, hrs	16	16
Density, lb/gal	12.5	12.5
600 rpm / 300 rpm	62 / 36	74 / 41
200 rpm / 100 rpm	26 / 16	30 / 19
6 rpm / 3 rpm	3 / 2	3 / 2
Plastic viscosity at 120°F, cPs	26	35
Yield point, lb/100 ft^2	10	6
Gel strengths – 10 sec/10 min, lb/100 ft^2	4 / 17	5 / 30
pH	10.2	10.6
API fluid loss, ml/30 min	4.5	4.0
HTHP at 300°F, ml/30 min	19.2	14.4
Lubricity coefficient	0.291	0.237
Hot roll dispersion test (Pierre II shale)		
Initial shale weight, gm	20.0	20.0
Recovered shale weight, gm	17.5	17.8
% Recovery, 80 mesh screen	87.5	89.0

PACKING OF GILSONITE “NATURAL ASPHALT” LUMP AND POWDER FORM “MICRONIZED”

GILSONITE IN LUMP FORM LIKE ROCK PACKED IN 500~1000KG JUMBO BAG
GILSONITE 200 MESH PACKED IN 500~1000KG JUMBO BAG
GILSONITE 300 MESH PACKED IN 500~1000KG JUMBO BAG
GILSONITE 30-40 MESH PACKED IN 500~1000KG JUMBO BAG
GILSONITE 100 MESH PACKED IN 500~1000KG JUMBO BAG
GILSONITE 300 MESH PACKED IN 25KG PP BAG
GILSONITE 200 MESH PACKED 25KG MULTI PAPER BAG
GILSONITE 200 MESH PACKED 50LBS MULTI PAPER BAG
GILSONITE 30-40 MESH PACKED PP BAG ON PALLET
BULK ON VESSEL

SPECIFICATION OF GILSONITE

NO	TEST	RESULT	TEST METHOD
1	ASH CONTENT,WT%	5	ASTM-D3174
2	MOISTURE CONTENT,WT%	1%	ASTM-D3173
3	VOLATILE MATTER,WT%	63	ASTM-D3175
5	SOLUBILITY IS CS2,WT%	81	ASTM-D4
6	SPECIFIC GRAVITY @25 C	1.11	ASTM-D3289
7	NORMAL HEPTHAN INSOLUBLES,WT%	79	ASTM-D3279
8	COLOR IS MASS	BLACK	----------
9	COLOR IN STREAK OR POWDER	BLACK	----------
10	SOFTENING POINT,C	210	ASTM-D36
11	PENETRATION @25C	0	ASTM-D5
ELEMENT ANALYSIS			
1	CARBON,WT%	84	ASTM-D5291
2	HYDROGEN,WT%	7.1	ASTM-D5291
3	NITROGEN,WT%	3.67	ASTM-D5291
4	OXYGEN,WT%	3.1	ASTM-D5291

OUR APPROVALS