

OIL & GAS

Specialty Chemicals



PRODUCTS LIST FOR UPSTREAM, MIDSTREAM & DOWNSTREAM

SR NO	PRODUCTS	TYPE
1	CORROSION INHIBITORS	UPSTREAM & DOWNSTREAM
2	BIOCIDE / BACTERICIDE	UPSTREAM
3	PPD (POUR POINT DEPRESSANT)	MID STREAM
4	NON IONIC SURFACTANTS	UPSTREAM & DOWNSTREAM
5	CLOUD POINT GLYCOL	MIDSTREAM
6	DEFOAMERS	UPSTREAM, MIDSTREAM & DOWNSTREAM
7	DEMULSIFIERS	MIDSTREAM
8	POLYAMINE / POLYL	MIDSTREAM
9	SHALE INHIBITORS	UPSTREAM
10	DRAG REDUCING AGENT	MIDSTREAM
11	LCM (LOST CIRCULATION MATERIAL) CELLULOSE FIBER	UPSTREAM
12	WEIGHTING AGENT - HEMATITE	UPSTREAM
13	LCM (LOST CIRCULATION MATERIAL) - GELLING AGENT	UPSTREAM
14	MICROMAX	UPSTREAM
15	SILICA FLOUR	UPSTREAM
16	POLYVINYL ALCOHOL - PVA	UPSTREAM
17	DESALTING CHEMICALS	MIDSTREAM
18	WAX INHIBITOR	MIDSTREAM
19	ASPHALTENE INHIBITOR	UPSTREAM & MIDSTREAM
20	H2S SCAVANGER	MIDSTREAM
21	SOLVENTS	DOWNSTREAM
22	DETERGENT & CATALYST	DOWNSTREAM

MANUFACTURING PLANT IN MEHSANA, GUJARAT.



Chemical Services for Midstream and Downstream

BG_ 360

KEY FEATURES



- Single solution which can mainly reduce DRAG, protect from corrosion, reduce the precipitation of heavy components, and reduce the back-pressure by improving the viscosity of the crude in the long run.
- Coating agent along the line to make sure no deposit halting/taking deposition in the line
- BG-360 is a proprietary, multifunctional chemical formulation customized. It replaces the need for multiple traditional chemicals used in pipeline maintenance, offering a more efficient solution for enhancing crude oil flow and preventing pipeline damage

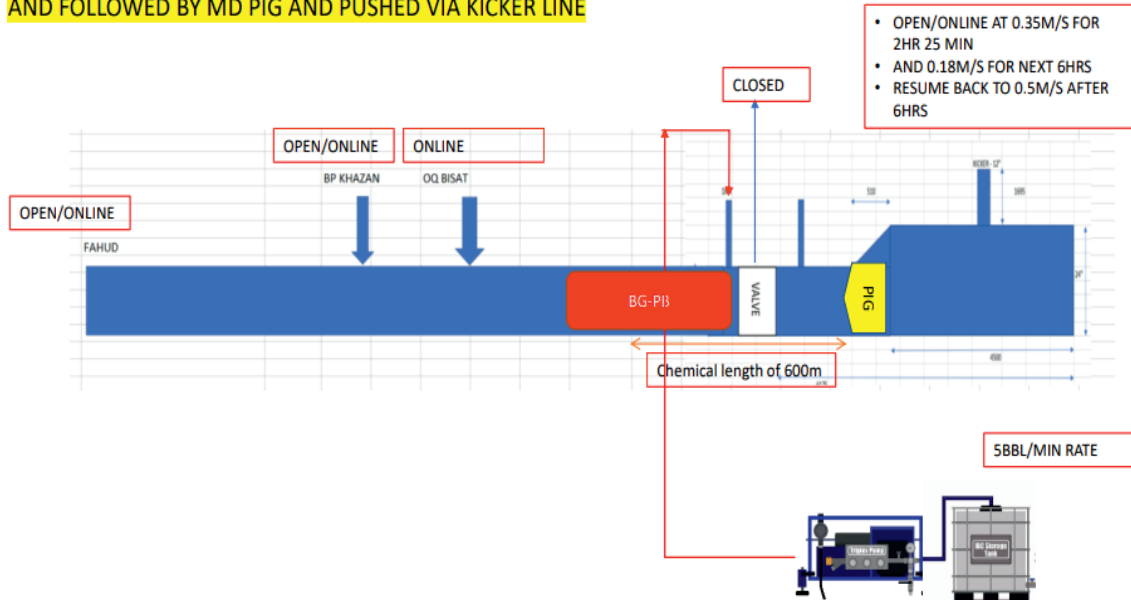
BG_ PIPELINE

PROJECT COMPLETED / KEY FEATURES

ON-LINE CLEANING OF MOL 20", 58 KM STUCK WITH A PIG WHICH CARRY 27,000M³/DAY FOR NATIONAL OIL COMPANY OMAN

- Specialty formulation to break and disperse organic embedded polymers at lower portion of pipeline at a distance of 4 Km and onwards.
- Formulation aqueous base, crude and pipe metallurgy compatible.

PLUG OF CHEMICAL OF 745BBL (600M) TO BE INJECTED AT YIBAL AND FOLLOWED BY MD PIG AND PUSHED VIA KICKER LINE

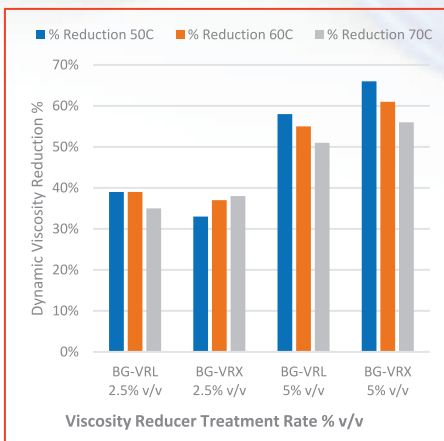


- A 600m length solution pill was injected into the pipeline to provide cleaning solution.
- Solution was pushed using a medium density foam pig with existing production.
- Pipeline integrity was restored to its optimal technical potential.

BG_ HEAVY OIL

AFTER EFFECTS OF STEAM FLOODING/ KEY FEATURES

- Optimization of Heavy Oil Related Problems (< 10 API) and downhole emulsion in producers of Steam Flooding.
- Formulated to disallow waxes from forming a continuous three-dimensional network with other heavy components.
- Composition customized to prevent any process upset .
- Can be used for wells, flow lines and pipelines during resumption of flow.



Source: Client Report

50-60% reduction in viscosity for oil in just 2.5% of BG_Heavy Oil Series

BG_ VISCOSITY REDUCER

BOTTLE TESTING IN FIELD/ KEY FEATURES

- Optimization of Heavy Oil Related Problems (< 10 API) in pipeline flow and downhole emulsion in wells.
- Viscosity increases many fold during winter & peak winter (<10deg C) resulting in back pressure and shut down of many wells.
- Single cocktail to tackle field issues in summer and winter conditions ultimately improve flow assurance and production gain in the pipeline.

CRUDE CHARACTERISTIC (AS ANALYZED)		
PARAMETER	Pipeline Header	Well X
TAN (mg/KoH)	12.94 (1 st Sample) 14.31 (2 nd Sample)	8.0
PP (degC)	-12 (1 st Sample) +3 (2 nd Sample)	-21
Sulphur (%)	1.554	Not Required
Salt Content (PTB)	447.6	
SARA/Analysis	<ol style="list-style-type: none"> 1. Predominantly Paraffinic. 2. Rich in macro crystalline wax. 3. Resin/Asphaltene ratio is >1, so colloidal Asphaltenes will not precipitate out. 4. Highly Acidic in nature due to metal naphthenates. 5. Sulphur content is >0.45%, which is highly sour. 	<ol style="list-style-type: none"> 1. Associated water rich in Calcium & Magnesium ions. 2. Low solidification point with very high TAN Number. 3. Highly Acidic in nature due to metal naphthenate. 4. (very much similar to Thayfut header crude)

BG_ DEMULSIFIER

REMEDICATION OF DEMULSIFICATION OF TOUGH EMULSION OF MEHSANA ASSET / KEY FEATURES

Specialized formulation for demulsification of tough emulsions.

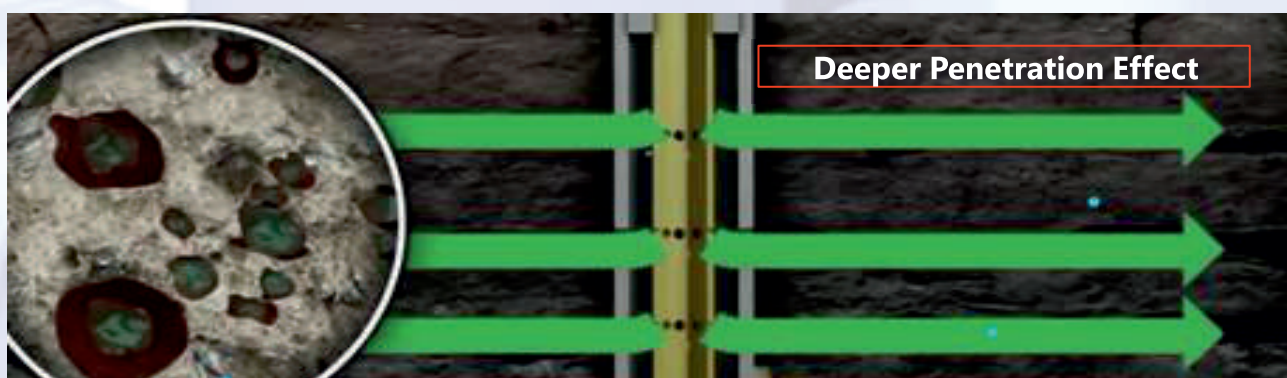
- Enhance efficiency of separation processes by reducing time and energy.
- Tailored to specific operating conditions and can be customized to address unique challenges of different oilfield conditions.

BG_ DESCALING

INORGANIC AGGLOMERATED WITH ORGANICS/ KEY FEATURES

- One Stop Solution to remove inorganic scale agglomerated with organic deposit with other oily sediment without any side effects.
- BG-OTS is a niche solution to remove scale with organics, added to the benefits of micro-emulsion formulation to enable removal of whole gamut of solids which are complex in nature related to oil producer.

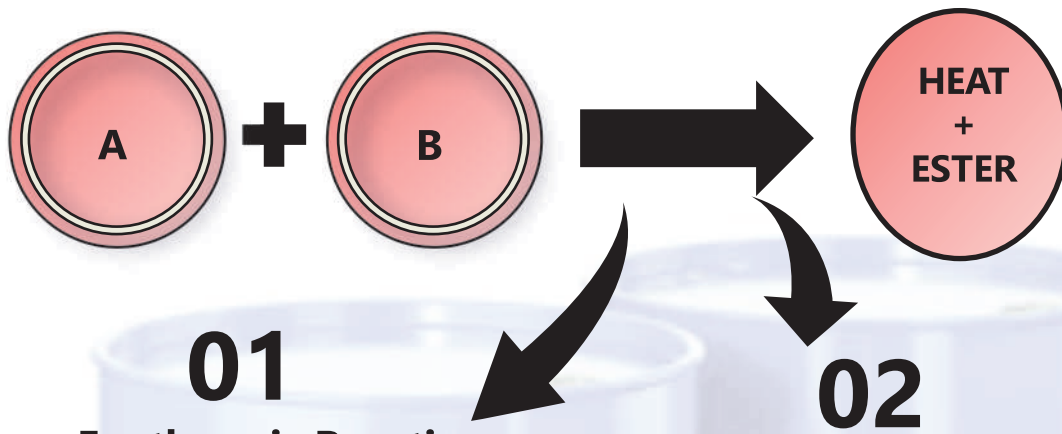
Cleaning Medium	Organic Deposits	Carbonate Scales
Acid	By-passed	Dissolves
Commodity Solvent	Partly dissolves	By-passed
BG-OTS	Dissolves/disperses	Dissolves/disperses



BG_ DEWAXING

DEWAXING OF WELL TUBINGS/ KEY FEATURES

- Thermo-technology system (Wellbore damage and blockage remediation)
- Consists of two custom designed Formulations to generate in-situ heat when mixed in certain proportion which can be customized to produce heat of 75 to 135°C and ester for dissolution / dispersions of micro / macro-crystalline waxes & asphaltenes.



01 Exothermic Reaction

- Heat (in-situ) up to 135°C
- Heat dissolves and disperses organic deposits
- Pumped in determined ratio at entry into well / pipeline
- Acts as wax & asphaltene dispersant
- No change in characteristic of crude

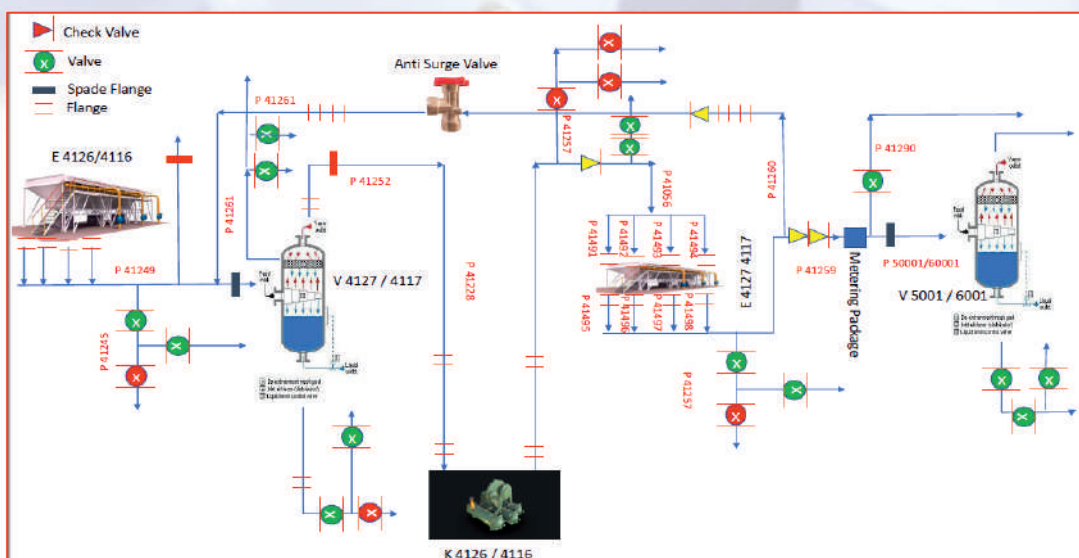
02 Physical Chemistry

- Prevents re-crystallization
- Compatible with produced fluids and rock materials
- No discard during flow back
- Helps in Demulsification in down process by formation of ester as by product

BG_ SULPHUR

REMOVAL OF SULPHUR DEPOSITION BY AQUEOUS BASE FORMULATION AT AMBIENT TEMPERATURE / KEY FEATURES

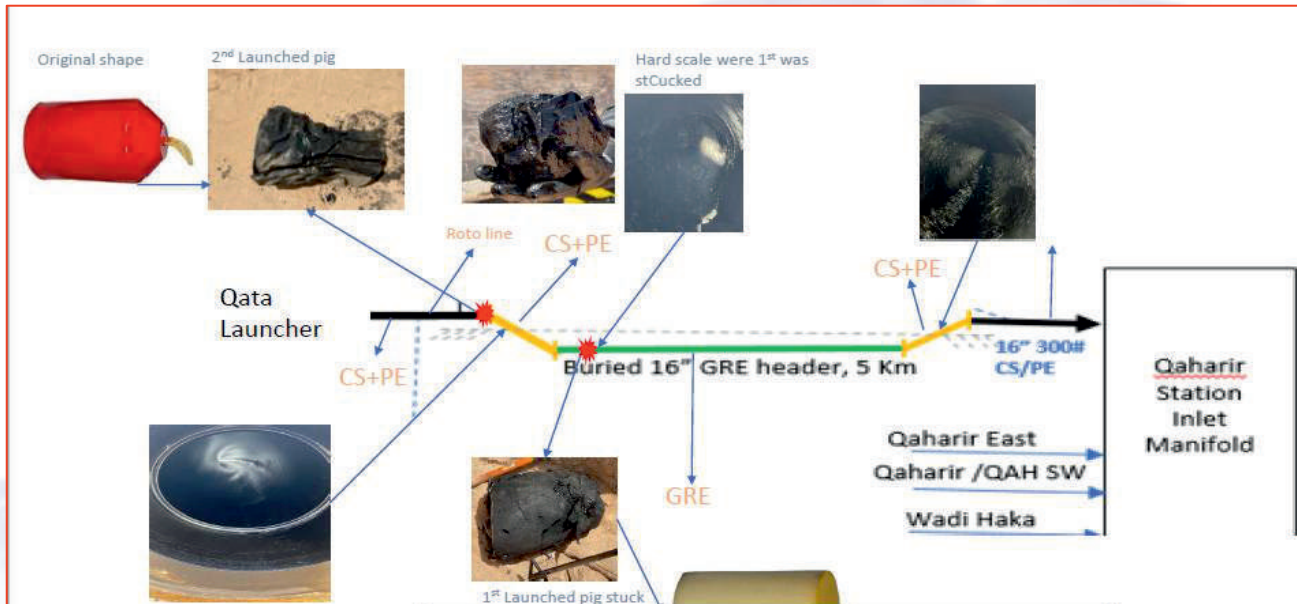
- Single pack formulation to dissolve and disperse Sulphur deposit in highly Acid Gas Scrubber System.
- Capability to dissolve the deposited Sulphur by **aqueous base** formulation readily without inducing any mechanical energy or heat.



BG_ BARIUM SULPHATE

SINGLE PACK FORMULATION TO SOFTEN BARIUM SULPHATE SCALE

- One Stop Solution to soften and disperse barium sulphate scale with assistance from BG_Pipeline.



BG_ RPC

BARE METAL CLEANING OF PIPELINES / KEY FEATURES

- **Combination of Chemical + Mechanical Pipeline Cleaning with Self-Propelled Bypass Tailor Made** tools for Dewaxing & Descaling.
- Methodology is proven with multiple track records with 60years of engineering studies and experience.
- In pipeline remediation to provide bare metal cleaning. Mainly to tackle deposition which are from family of paraffin, scales and including barium sulfate scales.
- HMC tools are self-propelled and having multiple advantages compare to pigs and other method which might consume time and risk to environment due to chemical and leakage.



BG_ SMART BALL

KEY FEATURES

- **Free floating sensor system**
- Machine learning data analytics
- Pipeline Viewer and Online GIS visualization platform
- Free floating deployment with magnet activation
- Can be combined with off-the shelf foam or poly pigs if required



- **Acoustics Sensor**

- Leak Detection
- Confirmation of containment
- Gas Pocket detection

- **Pressure Sensor**

- Deposit Inspection

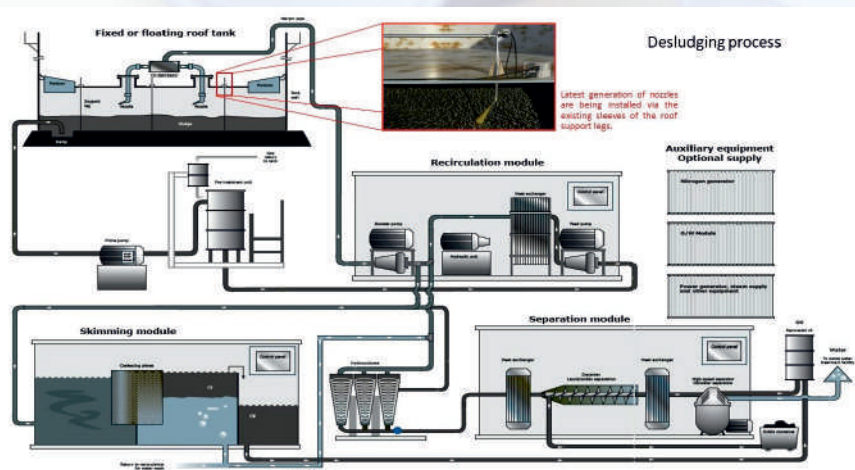
- **Magnetic Sensor**

- Magnetic Inspection
- Hot tap detection

BG_ AUTOMATED TANK CLEANING

CLEANING OF SLUDGE FROM CRUDE TANKS / KEY FEATURES

- Automated Hydrocarbon Recovery and Tank Cleaning Module with 99% hydrocarbon recovery factor.
- Technology for tank cleaning and process crude/sludge will be into sellable character as per need for both floating & fixed roof tanks.
- 99% cleaning effectiveness and ROI on sludge recovery.
- Fully automated with zero-man entry concept.
- Environmental friendly and economical



ONGOING PROJECTS





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