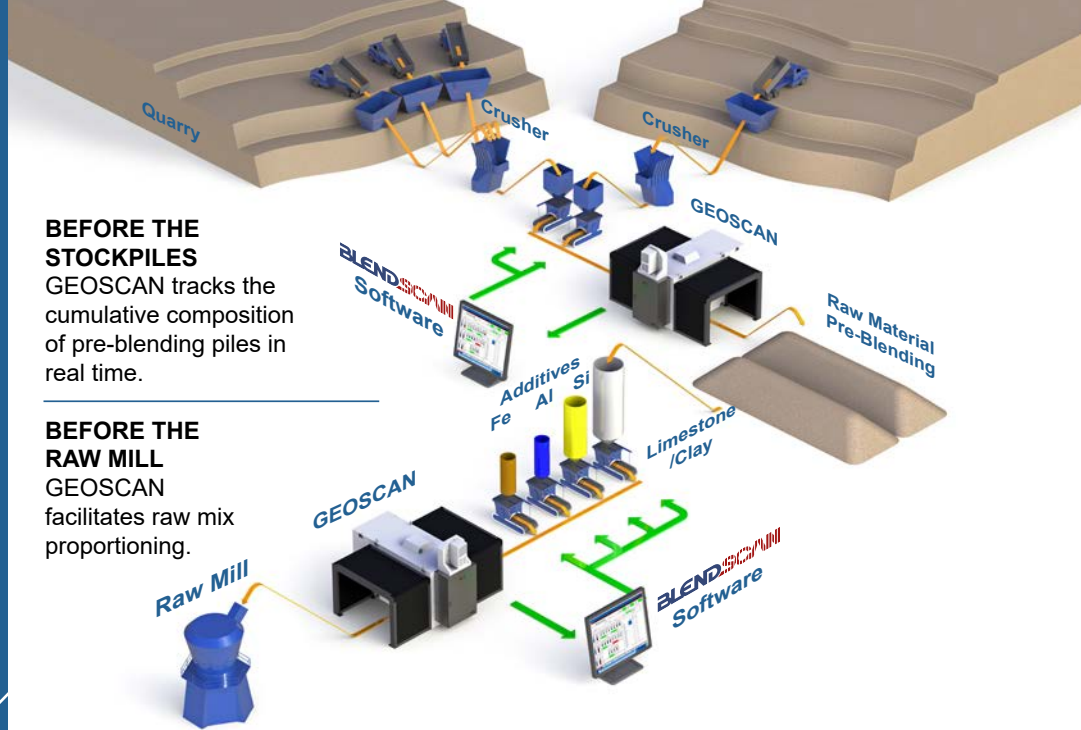


PROCESS CONTROL FOR THE CEMENT INDUSTRY



BEFORE THE STOCKPILES
GEOSCAN tracks the cumulative composition of pre-blending piles in real time.

BEFORE THE RAW MILL
GEOSCAN facilitates raw mix proportioning.

Automatic Blending Control System of raw material feed to Stockpiles and Raw Mills

Scantech is a global leader in the supply of on-line analysers for conveyed bulk materials in the cement, coal, energy and minerals sectors.

BLENDSCAN controls the proportioning of raw material feed into stockpiles or raw mills to obtain the desired product quality while respecting process limitations and minimising the total material cost.

There are 3 versions of BLENDSCAN.

Stockpile:

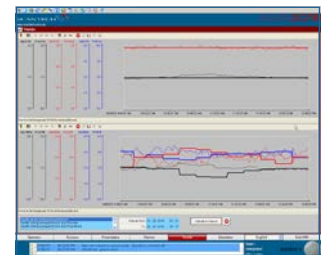
- **BLENDSCAN PILE ONLINE** – automatic blending system for quality control of stockpiles with feeders
- **BLENDSCAN PILE OFFLINE** – stockpile blending system without feeders (with trucks/buckets)

Raw Mix:

- **BLENDSCAN MILL** – automatic blending system for quality control of the raw mix

BLENDSCAN Features

- Offers a reliable user-friendly human-machine interface (HMI) to introduce the parameters, view on-line, historic trends and alarms,
- Generates electronic reports (either automatically; daily, monthly, yearly or manually; for a specific time interval).
- Takes into account constraints such as limitations on input material proportions by a proprietary constraint control and optimisation algorithm,
- Rejects anomalous readings due to short term upsets such as temporary stops of feeders or the GEOSCAN and stockpile changes,
- Exact knowledge of the input material compositions is not required, only the main differences in quality between input materials.



BLENDSCAN Benefits

- Minimises variations in product quality
- Increased production
- Increased profits
- Configuration flexibility
- Reliable HMI based on Siemens WinCC

BLENDSCAN PILE OFFLINE

offers similar features as BLENDSCAN PILE ONLINE version. However, in the absence of feeders BLENDSCAN PILE OFFLINE advises the quarry operator on how many tons of each input material (e.g. distinct classes of limestone, clay, marl, etc.) should be put on the remaining stockpile.

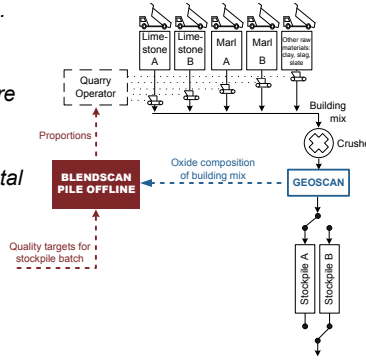
Primary Features:

- ensuring quality targets (e.g. LSF, SR, AR) are reached

optimally for a given stockpile.

- constraint handling so limitations on selected oxides (e.g. MgO, K₂O, SO₃, etc.) are controlled.
- minimise transition time (e.g. startup, stockpiles) and the total material cost.

For BLENDSCAN PILE OFFLINE, knowledge of the average input material is required.



BLENDSCAN PILE ONLINE

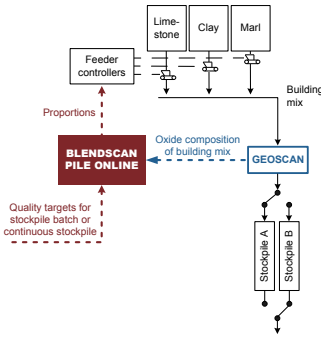
controls the quality of stockpiles based on GEOSCAN analyser measurements by automatically adjusting feeder proportions of the input materials (building mix).

Primary Features:

- computes and filters on-line the quality (e.g. LSF, SR, AR, liquid phase, oxides) of the building mix and the cumulated stockpile
- corrects possible deviations from the target quality (e.g. LSF, SR, AR) for a target stockpile tonnage (batch control) or continuously (continuous)

control) end after each new GEOSCAN measurement by automatically adjusting proportions of the input materials (e.g. limestone premix, clay or marl premix, slag, slate, etc.).

- visualises in real-time the quality corresponding to each layer in a stockpile layer plot (longitudinal stockpiles) or to each angular section in an angular section plot (circular stockpiles).
- OPTIONAL Automatic compensator for offsets between PGNA and XRF measurements



BLENDSCAN MILL

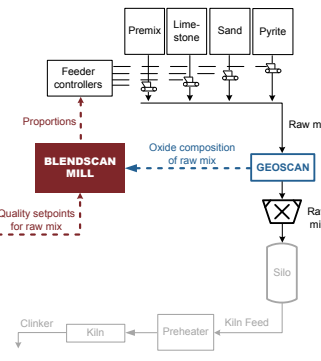
controls the quality of raw mix product based on GEOSCAN analyser measurements by automatically adjusting the raw mix proportions (premix, additives).

Primary Features:

- corrects possible deviations from the desired raw mix quality (e.g. LSF, SR, AR) continuously (continuous control) or at batch end (batch control) after each new GEOSCAN measurement by automatically adjusting

proportions of the input materials (e.g. premix, limestone, sand, pyrite, clay, bauxite, etc.).

- communicates with various devices (GEOSCAN, dosage controllers/feeders) via customised protocols (S7 Industrial Ethernet, OPC DA, etc.)
- OPTIONAL Automatic compensator for offsets between PGNA and XRF measurements



- GEOSCAN-M On-belt Elemental Analyser for Minerals
- IRONSCAN 1500 On-belt Natural Gamma Iron Ore Analyser
- MINERALSCAN 1500 On-belt Natural Gamma Minerals Analyser
- CM100 On-belt Conductive Material Moisture Analyser
- GEOSCAN-R On-belt Elemental Analyser for Recycling
- TBM 280 Through Bale Moisture Monitor
- BALZSCAN 9500X On-belt Elemental Analyser for Alternative Fuels
- BALZSCAN 2100 On-belt Ash Analyser for Alternative Fuels
- TBM 280 BaleScan Through Bale Moisture Monitor for Alternative Fuels
- GEOSCAN-C On-belt Elemental Analyser for Cement
- BLENDSCAN Process Control for the Cement Industry
- TBM 260 ReadMoist Through Bin Moisture Analyser for Concrete

- GEOSCAN-S On-belt Elemental Analyser for Steel
- CM 100-S On-belt Conductive Material Moisture Analyser
- COALSCAN 9500X On-belt Elemental Analyser for Coal
- COALSCAN 1500 On-belt Natural Gamma Ash Analyser
- COALSCAN 2100 On-belt Ash Analyser
- CIFA 350 Carbon in Fly Ash Analyser
- TBM 210/220/230/240 Through Belt Moisture Analysers
- TBM 260 Through Bin Moisture Analyser
- SIZESCAN Particle Size Distribution Analyser

Scantech's Analysers

Scantech provides the recycling, energy, mining, coal, steel and cement sectors with analysers for a wide range of applications and environments. Scantech can deliver online solutions that suit your process, reduce your operating costs and minimise Health, Safety and Environmental risks for your operations. Whether you need to monitor moisture, ash, sulphur, mineral or energy content we have the right application for your needs and budget. Real time analysis during the various

phases of production provides operators with significant opportunities for plant optimisation and quality control. Over the past three decades, Scantech analysers have become a standard process control tool in the resources and recycling sectors. Scantech analysers are a fundamental component of companies' digital technology strategies utilising real time measurement systems to enable core processes to become fully integrated, autonomous, remote and automated.



Scantech Products have Patented Technology & Registered Trademarks

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