



Alternative Fuels

Competence in AF Processing for the Cement industry

Service, Engineering and Supply for
Alternative Fuels in the Cement industry

Input- Material



Industrial Waste



Municipal Waste



Landfill-Recovery



Wood Waste



Bulky Mixed
Waste



Biomass



Tyre Chips

Cement industry and its cement production is under continuous economic and ecological pressure. Reducing fuel cost and cutting the CO₂-emission are the top requirements. For both an increased use of AF – Alternative Fuels – is a good answer.

The controlled usage of alternative fuels has almost no effect on the basic emission of the plant, nor on the clinker burning process nor on the product quality. It is no longer utilizing a portion of cheap fuel or waste disposal, it is well designed and systematic co-processing alternative fuels.

Using the full potential of AF co-processing, four major steps have to be considered:

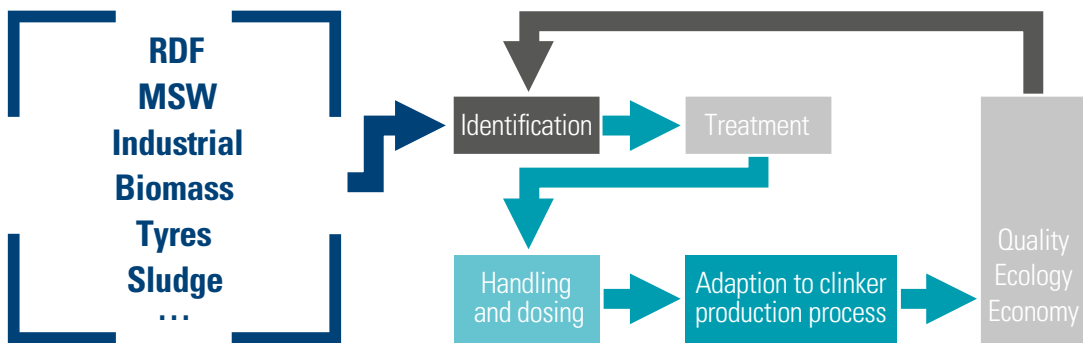
- Assess and analyze available wastes, residues or biomass and the existing clinker production plant to find fuels fitting to the raw material and burning situation
- Engineer or use the right treatment of wastes and residues to produce tailor-made fuels fitting to the raw material and burning situation of the plant
- Get suitable transport, storage and dosing equipment
- Get the clinker production plant equipped or adapted with suitable burner, appropriate calciner and process design.

A maximum of the energy content in the alternative fuels can be utilized in the clinker production process and the ash minerals are completely integrated into the clinker.



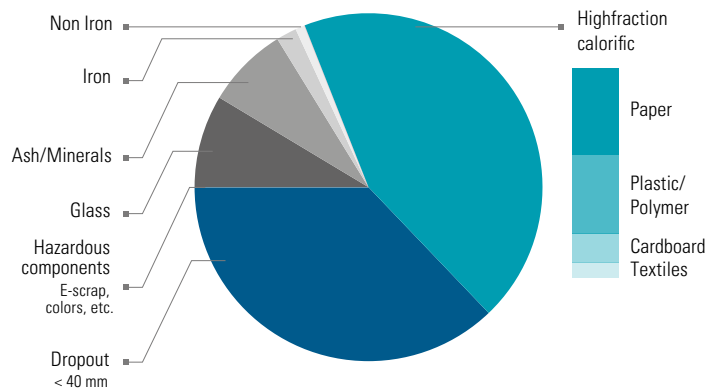
Identification

Feedstock for alternative fuel can be nearly anything: residues, wastes or biomasses in liquid, viscous or solid form.



Analyzing and Assessing

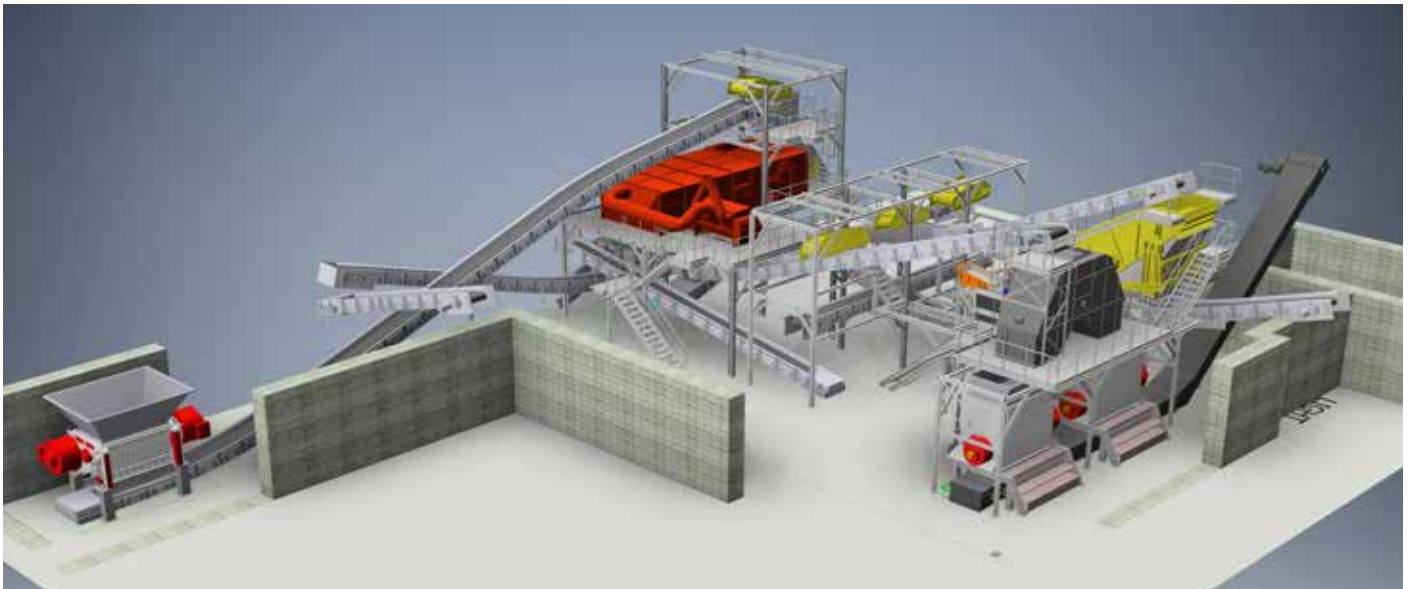
According to the four steps, before choosing and preparing alternative materials it is important to analyze and assess the materials for their suitability in the clinker burning process with regard to chemistry, emission and environmental impact as well as its potential behavior in the burning process. Their sustainable, ecologic and economic availability has to be analyzed and evaluated.



Alternative Fuels Preparation

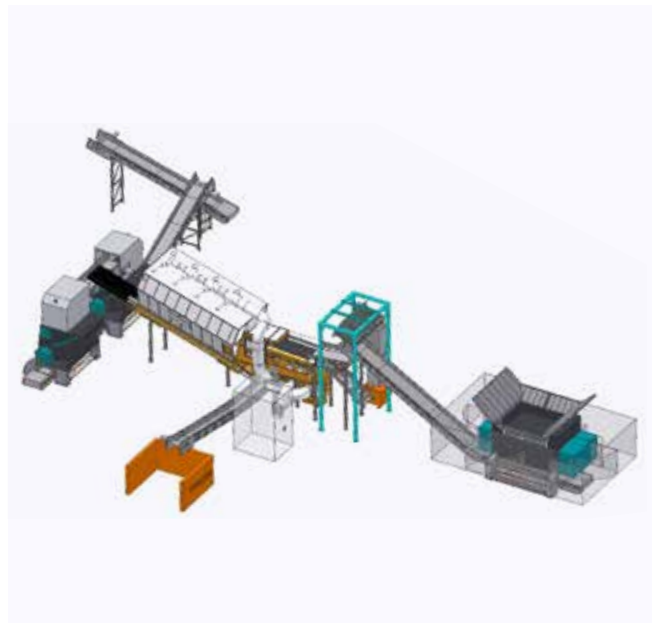
Residues, wastes and biomass in nearly undefined size and form are typically either separately or jointly pre-processed to remove minerals and organics, metals, glass, ash or other harmful constituents from the fuel. After shredding, sieving, screening and/or separation the result is a highly enriched caloric fraction (HCF) with a lump size optimized for the burning process.



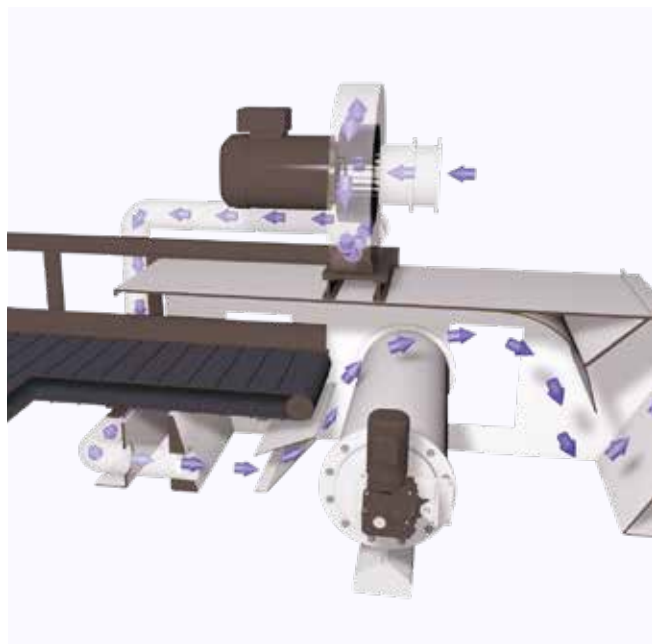


An ideal pre shredder is the well-established 2-rotor pre shredder type "VVZ" or the single shaft shredder "VEZ TV", characterized by a high throughput, its robustness and insensitiveness against interferences of any kind, low maintenance requirement and high availability and flexible, dynamic high torque drive system with outstanding energy saving attributes.

Vibrating screens efficiently sieve the unwanted minerals and organics. Overbelt magnets or magnetic drums reduce contents of disturbing iron. The separation with the windsifter takes only a light and high caloric fraction for further treating to the fuel.



Within the alternative fuels treating step the final engineered fuel is produced. To process well-defined fuel e.g. < 30 mm main burner or < 50 mm pre calciner the pre processed HCF needs a second shredding step, which is done with a specialized fine-shredder. The requested safe fuel quality can be best ensured with the VEZ shredder having a specialized rotor design and two counter-knives. The material is fed continuously to the rotor by speed-controlled hydraulic ram. This is ideal for high throughput and also for a stable and low grain size of final fuel. The design is for high efficiency and durability as well as for low maintenance requirements and costs.



VEZ and VAZ shredder series are robust and very universal units. The single rotor design and the hydraulic material ram make this machine ideal for shredding of a large variety of different wastes and baled materials. This machine is an ideal supplement to a professional AF processing plant.



Handling and Dosing

Processed fuel not going direct from the processing plant to the consumer in the cement plant may need truck transport and subsequently truck unloading at the plant level.



The shown Truck Unloading Station (TULS) has the special feature of working nearly dust- and spillage-free without the need for a dedusting system. Unloading capacities up to 350 m³/h are possible. It takes moving-floor as well as tipping truck trailers. Other TULS designs in single or double trailer reception are also available depending on the installation situation.



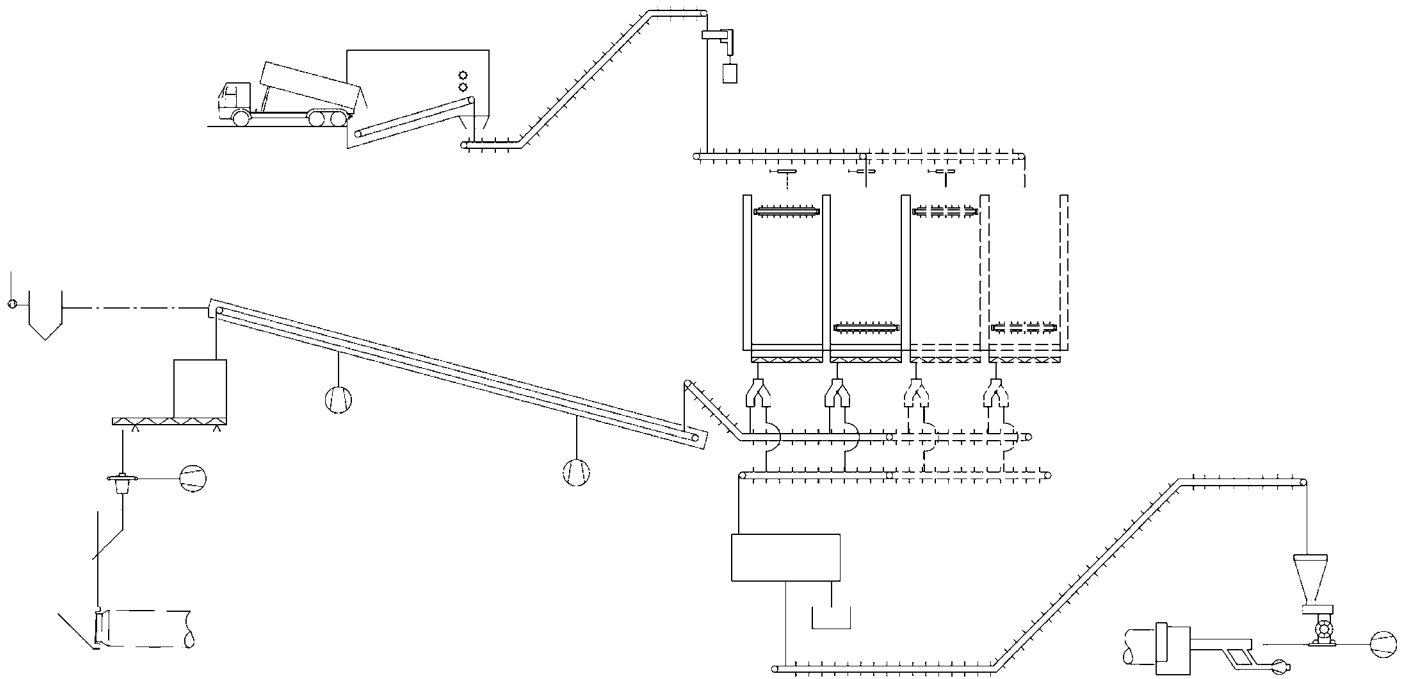
Within the alternative fuels handling the material should be conveyed mainly by mechanical means: Short and low-incline transport at the processing plant can be handled with standard flat belt conveyor. For handling within the cement plant and for inclination the completely enclosed chain conveyor with protected chain design is a good and suitable choice. For longer distances up to 500 m the totally enclosed, air supported conveyor with or without standardized simple steel support the VecoBelt is the best choice.

Adaption clinker production process

High quality injection procedure by Vecojector (modern swirler technology).

Quality, Ecology, Economy

At the end of a tailor-made AF process installation comes the check for clinker product quality and the questions for improvement of ecology and economy have to be asked and answered.



Depending on the results further optimization of the individual processing steps may be necessary or the fuel cycle must be gone through again starting with the selection and assessment of new alternative fuels feedstock.



Vecoplan[®]

Vecoplan AG
Vor der Bitz 10
56470 Bad Marienberg | Germany
phone +49 2661 62 67-0
fax +49 2661 62 67-70
welcome@vecoplan.com
www.vecoplan.com