



Technology for Ethanol

www.vsengenharia.com.br



The Company

VS Engineering acts in the market for over 20 years with different technologies for the industrial sector, specialized in project development, consulting, assembling attendance and start-up.

The Technical Staff of VS engineering is made by Mr. Valter Felipe Sicchieri as its founding partner and Mrs. Maria Fatima Marquini, Chemical Engineer Phd, both with wide experience in industrial processes, besides a highly qualified professional team, composed by active engineers and draftsmen in areas such like: mechanical and processes engineering, aiming at efficient and specific solutions with high technology and quality, according to the International Standards ASME VIII - American Society of Mechanical Engineer, TEMA - Tubular Exchanger Manufactures Association and API 650 and 620 - American Petroleum Institute.

The engineering draft services are all internal, which assure a high product confiability level and also a VIP customer care.

VS Engineering keeps strategic partnerships for the manufacture and assembly of the equipment incorporated to its contracts with all the proper guarantees , providing an easy and reliable interface to its customers.

Business Areas

- Sugarcane and Ethanol;
- Food industry;
- Juice industry;
- Beverages;
- Pulp and Paper;
- Pharmaceutical;
- Chemical;
- Oil & Gas;
- Wastewater treatment.

Equipment

- Distillation Columns;
- Falling Film Evaporators;
- Heat Exchangers;
- Tanks;
- Condensers;
- Pressure Vessels.



Services

Engineering

- **Conceptual** – Supplies Technological Solutions for industrial equipment and processes aiming at the best possible configuration for the project's implantation.
- **Basic** – Studies the Project's Technical Requirements offering the system or equipment's type who best fits into the customer needs.
- **Detailing** – Post-Basic Engineering, continues the data transformation process into relevant information for the equipment's manufacture.

Industrial Consulting – Analyses the production and operation capacity of the productive process aiming at an alignment with the Company's strategic planning.

Feasibility Study – Technically evaluates the equipment and industrial plants for the supplying of Implementation cost estimatives.

Process Retrofit – Supplies technological solutions for the current processes improving the production capacity and decreasing the utilities consumption.

Project Management – Follows all the implementations phases of an industrial compound, whose are needed for a qualitative conclusion of the project, within all deadlines and planned costs.

Adequacy to the Regulatory Rules – Elaborates maintenance plans, equipment correction and adequacy, whose include alteration projects, repairs and execution, according to the Regulatory Standards.

Technical Assistance

- Assembling Supervision;
- Start-up;
- Technical-operational training;
- Technical Specifications.



Molecular Sieve
Iacanga Mill



Hydrous Ethanol
Cerradinho Bioenergy



Neutral Hydrous Ethanol
San Francisco Mill



Hydrous Ethanol
Vertente Mill



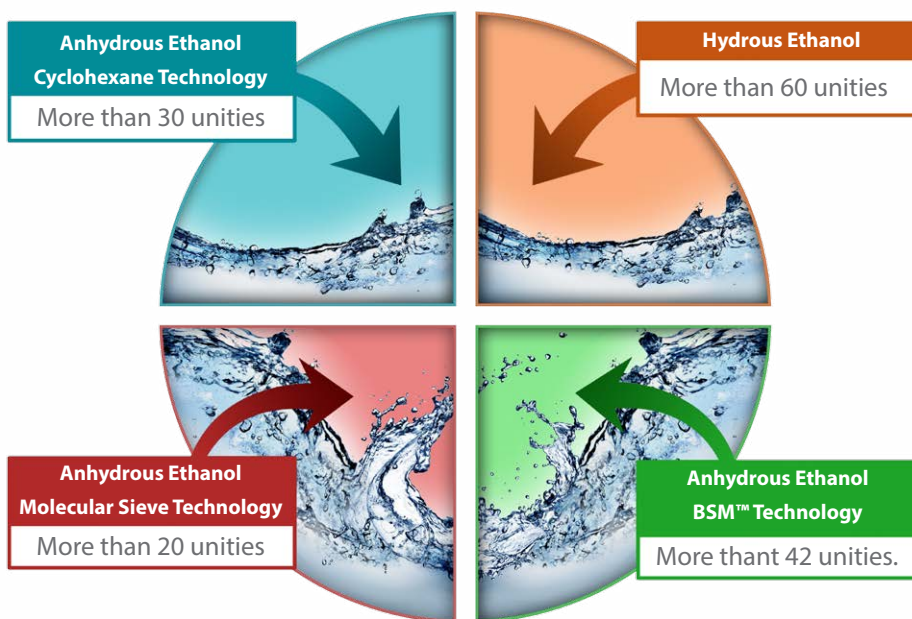
Technology for the production of:

- Hydrous Ethanol (Combustible);
- Neutral Hydrous Ethanol;
- Anhydrous Ethanol
 - BSM™ - Monoethylene Glycol
 - Molecular Sieve - Types CR /SR /DE
 - Cyclohexane
- Yeast Cream Dealcoholization;
- Soya micelle Dealcoholization;
- Ethanol salts remotion;
- Ethanol recovery from the CO₂ of the Fermentation.

BSM™ Technology

It is a system capable to produce anhydrous ethanol with a non volatile, non flammable and almost non toxic product, employing the monoethyleneglycol, thru the extractive distillation.

The water volatility is reduced, facilitating the liberation of the anhydrous ethanol in vapor phase. The main observed characteristics are the energy consumption, equal or better, compared to other technologies that perform the same work, with capacity to increase the anhydrous ethanol production into current plants with less costs.



Molecular Sieve
Odebrecht Costa Rica



Molecular Sieve
Uberaba Mill



Hydrous Ethanol and Molecular Sieve
Aroeira Bioenergy



BSM™ Anhydrous and Hydrous Ethanol
BP Tropical.



VS Engineering has a history of success in project development for reputable equipment manufacturing companies in the ethanol production area and also other market segments.

Follow below some of our customers whose have the VS Engineering Technology in their productive processes.

- Abengoa Bioenergia Agroindústria Ltda.
- Açúcar e Álcool Oswaldo Ribeiro de Mendonça Ltda.
- Açucareira Quatá S/A
- Adecoagro Vale do Ivinhema Ltda – Unidade Ivinhema
- Alltech – Unidade Vale do Ivaí
- Ambev S/A– Filial Pirai - RJ
- Bioenergética Aroeira S/A
- Biosev S/A – Unidade Giasa / Passatempo / Vale do Rosário / MB / Continental
- BP-Biocombustíveis – Unidade Tropical Bioenergia / Itumbiara / Ituiutaba
- Bunge – Unidade Moema / Frutal / Guariroba / Ouroeste / Itapagipe / Monte Verde / Pedro Afonso
- Caramuru Alimentos – Unidade Sorriso
- Cerradinho Bioenergia S/A
- Cevasa – Central Energética Vale do Sapucaí Ltda.
- Cia. Energética de A. Vale do Tijuco Ltda.
- Clealco Açúcar e Álcool S/A – Unidade Queiroz / Clementina
- Cocal – Com. e Ind. Cana Açúcar e Álcool Ltda.
- Cooperativa Agroindustrial Nova Produtiva
- Destilaria Melhoramentos S/A – Unidade Jussara / Nova Londrina
- Destilaria Vale do Paracatu Agroenergia Ltda.
- Goiasa – Goiatuba Álcool Ltda.
- Grupo Vale do Verdão S/A – Unidade Vale do Verdão / Floresta
- Grupo São Martinho – Usina Iracema / São Martinho / Boa Vista
- Guarani S/A – Unidade Mandu / Cruz Alta
- Ipiranga Agroindustrial – Unidade Mococa / Iacanga / Descalvado
- Nardini Agroindustrial Ltda.
- Odebrecht Agroindustrial – Unidade Costa Rica / Santa Luzia / Eldorado / Rio Claro.
- Pdvsa Agrícola – Trujillo II / Zulia Merida - Venezuela
- Pedra Agroindustrial S/A – Unidade Ipê / Buriti / Pedra
- Raízen – Unidade Araraquara / Tarumã / Caarapó
- S/A Usina Coruripe Açúcar e Álcool – Unidade Campo Florido / Iturama
- Santa Vitória Açúcar e Álcool Ltda.
- Sementes Selecta – Unidade Araquari
- Usina S.J. Açúcar e Álcool S/A – Unidade Quirinópolis
- Umoe Bioenergy S/A
- Usina Alto Alegre S/A. – Unidade Colorado / Presidente Prudente / Florestópolis
- Usina Alta Mogiana S/A - Açúcar e Álcool
- Usina Batatais S/A - Açúcar e Álcool
- Usina Cerradão Ltda
- Usina Laguna Álcool e Açúcar Ltda.
- Usina Rio Vermelho
- Usina Santa Adélia S/A – Pereira Barreto / Jaboticabal
- Usina Santa Isabel S/A – Unidade Mendonça
- Usina Santo Ângelo Ltda
- Usina Santo Antônio S/A
- Usina São Francisco S/A
- Usina Uberaba S/A
- Usina Vertente Ltda.
- Viralcool Açúcar e Álcool Ltda – Unidade Castilho / Pitangueiras
- Virgolino de Oliveira S/A - Açúcar e Alcool – Unidade Itapira / Catanduva



98, Angelo Magro street - CINEP II
Sertãozinho - São Paulo - Brazil.
ZIP: 14.176-130
Ph: +55 (16) 3942-6088
www.vsengenharia.com.br