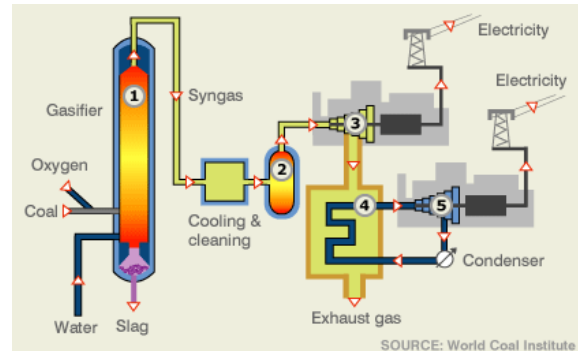


Coal Gasification Gas Processing Process Gas Analyzer

Basics and background

Coal gasification is the crossover of carbon into flammable gaseous components especially syngas – a mixture of carbon monoxide (CO) and hydrogen (H₂). Syngas is a crucial intermediate resource for production of hydrogen, ammonia, methanol and synthetic hydrocarbons. Also generator gas from coke and oxygen and “town gas” were made in earlier times. The syngas derived from coal can be converted by hydrogenation into various transportation fuels like methane, propane, butane, gasoline and diesel. There exist several procedures for coal gasification depending on the initial products (brown or black coal) and the desired final products.



Solutions – Use of process gas analyzers



The coal gasification process has the goal of creating syngas of a certain quality especially for hydrogen being used for production of ammonia requiring a certain gas purity. For impurities of carbon monoxide low ppm range NDIR analyzers are used as well as vol.% range analyzers for the produced CO. Other

measurements for emission control of CO, SO₂ and NO_x are performed with NDIR as well.

For process control LFE can offer measurements of oxygen and hydrogen for process monitoring and gas purity. The CONTHOS 3 – PMD can analyze e.g. 0-2...25% and also 0-5...100% O₂.

The various requested hydrogen concentrations can be measured with a thermal conductivity analyzer CONTHOS 3 – TCD offering several special ranges. Not only absolute ranges such as 0-5...50% and 0-20...100% H₂ can be realized but also suppressed ranges. Moderately suppressed ranges are 80-100% or 90-100%. Higher suppressed ranges such as 95-100%, 98-100% up to 99.5-100% H₂ are available for gas purity requests as well.

Conclusions

The special performance of the LFE CONTHOS 3 - TCD/PMD for analysis of O₂ and H₂ helps to monitor and analyze gas purity

during the coal gasification process leading to optimal process performance.

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