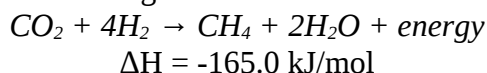


methane and water. Ruthenium with aluminum oxide can be used as a more effective catalyst. The process is described by the following reaction:



(to start the reaction requires some initial amount of energy / heat).

The reaction was discovered by the French chemist *Paul Sabatier*.

Safe wastes are waste products whose existence and (or) treatment under certain conditions and at certain times are considered safe for life, human health and the environment.

Safety is the state of protection of the vital interests of the individual, society, the state from internal and external threats or dangers.

Safety in waste liquidation is the absence of conditions that may cause harm or cause the death of personnel, damage or loss of equipment or other property during the disposal process.

Sanitary cleaning is the purification of gas from the residual content of pollutants in the gas, which ensures compliance with the established for the last MAC in the air of populated areas or industrial premises. This purification is carried out before the exhaust gases enter the atmospheric air. At this stage it is necessary to provide for the possibility of sampling gases in order to control them for the content of harmful impurities and to evaluate the efficiency of the treatment facilities.

Secondary energy resources (SER) are the energy potential of final, by-products and intermediate products and wastes of chemical production used for power supply of units and installations. These include the thermal effects of exothermic reactions, the heat content of the process waste products, and the potential energy of compressed gases and liquids.

Secondary production are substances, materials, components, parts, functional units, units, aggregates from various objects that have lost their consumer properties and are not suitable for further operation in accordance with directive requirements and / or normative documentation, but represent a commodity product.

Secondary raw material is secondary material resources for which there is a real possibility and expediency of use in the national economy.

Secondary resources is material accumulations of raw materials, substances, materials and products, formed in all types of production and consumption, which can not be used for their intended purpose, but are potentially suitable for re-use in the national economy for obtaining raw materials, products and / or energy.

Security of waste recycling is a set of documented characteristics of waste disposal operations, ensuring the absence or minimization of the risk of damage to personnel, population, production facilities, property and the environment.

Sedimentary rocks are rocks that are the products of the destruction of any rocks, the vital activity of organisms and the loss of mineral particles from the aquatic or air environment and their subsequent compaction and change - in all cases at the pressure and temperature peculiar to the surface parts of the earth's crust.

Self-poisoning is a deactivation of the catalyst in case the product of catalytic reaction is an inhibitor or catalytic poison.

Selective Catalytic Reduction (SCR) - works by treating exhaust gas after it leaves the engine. It employs an ammonia or urea injection with a catalyst that specifically targets NOx. An oxidation catalyst is typically incorporated to reduce other pollutants that come from the combustion of fossil fuels, such as carbon monoxide (CO), unburned hydrocarbons (UHCs), volatile organic compounds (VOCs) and hazardous air pollutants (HAPs).

The semi-product is a raw material that has been processed at one or several stages of production, but not processed into the target product. The semi-product obtained at the previous stage of production can be a raw material for the subsequent stage.

SCR "fast" is a selective catalytic reduction of equimolar mixture of NO + NO₂ with ammonia: $\text{NO} + \text{NO}_2 + 2\text{NH}_3 \rightarrow 2\text{N}_2 + 3\text{H}_2\text{O}$

SCR "slow" is a selective catalytic reduction of NO₂ by ammonia: