Comparison Between the Total Circulation Method of Aqueous Solution and the Production Process of CO_2 Steam Extraction Urea

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Abstract: The total circulation method and CO_2 of aqueous solution are discussed in the following paragraphs. The gas extraction urea process is analyzed in many aspects, including construction time, plant condition, investment process and production operation.

1. Solution Full Cycle Urea Process

In recent years, China's oil and gas have a large price increase phenomenon, so that part of the market with coal raw materials of enterprises to bring certain development to give, is a historic breakthrough. A large number of small and medium-sized urea enterprises in our country have rapidly become million tons of large production scale enterprises in this period, but in the process of getting urea, the enterprises CO_2 to adopt the full cycle method of mature water solution2Gas extraction urea process analysis and comparison, which way to use, specifically according to the situation of enterprises according to local conditions analysis.

According to the investigation and research, the full-cycle urea plant in various enterprises in our country is relatively stable, the production load of the enterprise is relatively convenient and fast, and the related staff are flexible in the process of operation. The enterprise company can obtain the superior quality guarantee in the normal operation process. Controlling the production products in a certain range of superior grade products has a high guarantee for the production quality of enterprises.

Figure 1 Urine tower

In the process of operation, Chinese enterprises use the whole-cycle urea plant in aqueous solution, which can guarantee the corrosion of mechanical equipment in the enterprise, especially the urine tower of the whole-cycle urea plant in aqueous solution. In the process of heating related equipment, the corrosion rate can be stabilized in a smaller range, reducing the loss of the company during operation, and the oxygen content of the whole-cycle urea plant in aqueous solution can be controlled in a smaller digital range. has a good stabilizing effect on the sustainable development of enterprises. In addition, the use of aqueous full-cycle urea plant for operation and production will reduce the demand of high-pressure system equipment in the internal unit of the enterprise, thus greatly reduce the input cost of the enterprise in the production process, improve the economic

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efficiency of the enterprise, and benefit the future development of the enterprise. Because the enterprise uses the aqueous solution full cycle urea unit to carry on the production process, has the big control to the ammonia carbon ratio, when stops, the urine tower holds the pressure time to be stable within one day, has the very big safeguard to the enterprise production stability.

The total circulating urea plant of aqueous solution has been improved for a long time. In the course of application for more than ten years, people have continuously improved and upgraded it, which makes the consumption of total circulating urea plant of aqueous solution decrease greatly in the production process. It has a great correlation with the degree of heat transfer effect of condenser used in the operation process, and plays a decisive role in the production integrated management quality of the enterprise in the operation process.

The steam consumption of the whole-cycle urea plant in aqueous solution is about 1200 urea during normal operation, and according to the investigation and research, the steam consumption produced by the whole-cycle urea plant in aqueous solution has been reduced below 1200 urea. The steam consumption in this process is related to the whole-cycle urea plant system. The operation of the whole cycle urea unit of aqueous solution applied by enterprises in normal operation depends more on the improvement of urea unit and the application of high efficiency heat transfer equipment.

In the course of operation, the whole cycle urea unit of aqueous solution is kept at 580 urea, and the above part of the market has good operation effect. However, in the consumption of cooling water in the whole cycle urea plant of enterprise aqueous solution, the enterprise can improve the heat energy recovery of the whole cycle urea plant system of aqueous solution, and further adjust and improve the operation technique and level of the whole cycle urea plant of aqueous solution, so as to reduce the consumption of cooling water, which may even be CO_2 The consumption level of circulating cooling in the production process of gas extraction urea process remained flat. In the actual production process, the operation period is long, and the specific operation aspect is relatively difficult, because of the high requirement of ammonia-carbon ratio control, the ammonia and carbon dioxide for the reaction should be fully absorbed through the medium and low pressure cycle system, and then returned to urea synthesis.

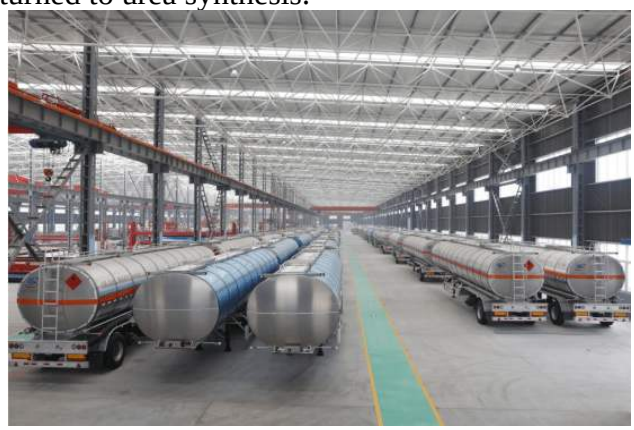

Figure 2 Urea synthesis

2. Urea Process

Application in China's market, many enterprise manufacturers to CO_2 The production and operation of gas extraction urea process also have a good view. CO2 Gas extraction urea process can play a good stabilizing role in the normal production and operation of enterprises, after the start-up of new equipment in enterprises, can quickly achieve the production design capacity, and in the specific implementation of the operation, but it is worth noting that enterprises in the operation CO2During the production of urea by gas extraction process, there is little potential to increase production in the new plant, which is mainly stable in CO_2 A gas-lift urea process unit is designed 100% if the enterprise wants the CO_2 The design capacity of gas extraction urea process unit is more than 125%, which is basically impossible to achieve, and there are great difficulties, it is difficult for enterprises to really realize the innovation and improvement of this step. C O adopted

2Gas extraction urea process for production and operation, the quality of products produced by enterprises has a greater guarantee, can be stable control in a certain range, enterprises in the normal production process, the quality of their production can ensure in the range of first-class products, it is difficult to appear a large number of superior quality products, the reason for this phenomenon lies in the CO_2 the content of solbird was higher in the production process of gas extraction urea process. C O in specific production processes During the normal production process, the carbon dioxide gas produced by urea is relatively stable, and the general oxygen content of carbon dioxide is relatively high, mainly at 0.8% of the oxygen content, and at CO_2 During the process of stopping operation by gas extraction urea process, the oxygen content is controlled on 1% net. On the basis of this operation, enterprises CO_2 in the process of operation the holding time of gas extraction urea process is stable at less than 8 hours.

Figure 3 Urea production

Enterprise utilization CO_2 Azeotrope ratio is generally used as the CO_2 in the production process of urea by gas extraction process2Gas extraction urea process operation control indicators to measure the specific control value, so that CO_2 As high as possible condensation temperature can be obtained by the gas-extraction urea process under the low ratio of CO_2 By-product grade of steam produced by gas extraction urea process to improve the C O of enterprise application2production efficiency of gas extraction urea process. Using this way to produce, the process will not appear medium pressure system, and the operation process is short, the specific operation ability requirements are not high, under the operating pressure, in the actual operation process will not appear too high temperature, always maintain the normal temperature, the corrosion of the enterprise machinery and equipment is relatively small.

CO_2 Air-extraction urea process consumes less steam during operation and CO_2 Gas extraction urea process consumption is mainly guaranteed at 1100 urea, and during the operation, the taste of steam is guaranteed below 2.5, on the basis of this operation data, CO_2. A large amount of 0.4 low pressure vapor is produced in the process of air-extraction urea during high pressure condensation, which can be applied to CO_2 the mortgage decomposition heater, evaporation heater and other systems in the gas extraction urea process provide certain conditions for use. In this process, the use of low pressure desorption tower and steam insulation system also brings some advantages.

CO_2 in the actual operation of the enterprise gas extraction urea process consumes relatively low power, and in the actual process of circulating water power consumption is mainly maintained at 135, which is the data in theoretical analysis, but in the actual production process, CO_2 Central team CO_2 of urea process by air extraction2The power of gas extraction urea is significantly higher than that of other indexes. CO_2 in urea process by gas extraction Gas extraction urea consumption of liquid ammonia is also low, in the normal operation process, can be stable control around 580, but once the enterprise in the operation of the CO_2. As the consumption of urea in gas extraction process is as high as 100% load, it is easy to C O with the continuous increase of load. The liquid ammonia consumption of gas-extraction urea increased in a straight line.

CO_2 Gas extraction urea process is short, and the actual operation is relatively simple, fast, in the actual operation process, the use of liquid ammonia pump and methylamine pump cycle is longer, in terms of maintenance costs are less expensive, can recover higher grade amine reaction heat, not

only that, but also can leave a small part of the low pressure steam, for CO2.The production capacity of the production unit is also very wide, and the operating state of the design unit is more stable, which makes the operation more insightful and the power consumption lower.

3. Conclusion

Adoption of C O above2 The analysis and comparison between the gas extraction urea process and the water solution full cycle method can start with the potential of increasing production, adjustment and optimization, difficult transformation and production consumption during the operation of the enterprise, and can accurately analyze it.

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