

# 年产 12 万吨丙烯酸生产工艺设计

## 摘 要

丙烯酸的化学式为  $C_3H_4O_2$ ，密度为 1.05，在常温状态下为无色液体。分子量为 72.064，化学式为  $C_3H_4O_2$ 。在室温下，它是一种无色液体，有明显的刺激性味道。其沸点为  $141.3^{\circ}C$ ，熔点为  $13.2^{\circ}C$ 。通过对其工艺生产试点研究以及大数据分析，采取丙烯酸两步氧化法对其进行工业化生产。与国际顶尖水平进行研讨后来进一步提升自己的产业化水平。同时，基于物料平衡和热平衡，进行了厂房的选址，设备的选型，以及经济的相应核算。并且用 CAD 绘制出设备图，以便于参考。最后顺利完成该设计。在整个生产过程中，除了考虑上述有关事项，以充分发挥其真正的好处，经济、环保和安全评价的计划进行，整个过程和数据表明，这个过程是可行的，经济核算是合理的。

**关键词：** 丙烯酸； 工艺流程； 两步氧化法



## Abstract

The chemical formula of acrylic acid is  $C_3H_4O_2$ , density is 1.05, and it is a colorless liquid at room temperature. The molecular weight is 72.064 and the chemical formula is  $C_3H_4O_2$ . At room temperature, it is a colorless liquid with a distinct pungent taste. Its boiling point is  $141.3\text{ }^\circ\text{C}$  and melting point is  $13.2\text{ }^\circ\text{C}$ . Through the pilot research and big data analysis of its process production, the two-step oxidation method of acrylic acid was adopted for industrial production. After discussion with the top international level, the level of industrialization was further improved. At the same time, based on the material balance and heat balance, the location of the plant, the selection of equipment, and the corresponding accounting of the economy were carried out. And draw the equipment drawing with CAD for easy reference. Finally, the design was successfully completed. In the entire production process, in addition to considering the above-mentioned related matters to give full play to its real benefits, the plan of economic, environmental protection and safety evaluation is carried out. The entire process and data show that this process is feasible and economic accounting is reasonable.

**Key words:** Acrylic acid; Process flow; Two step oxidation process

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