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INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI: 10.21474/IJAR01/16243

DOI URL: <http://dx.doi.org/10.21474/IJAR01/16243>



RESEARCH ARTICLE

NEW TECHNIQUE OF CO₂ REMOVAL FROM INDUSTRIAL AREA

Namesh Kumar

Regional Manager, Analyser Instrument Co. Pvt Ltd, Kota, Rajasthan, India.

Manuscript Info

Manuscript History

Received: 10 December 2022

Final Accepted: 14 January 2023

Published: February 2023

Key words:-

Reaction Chamber, Suction Fan, Pump
Etc

Abstract

The main source of CO₂ is the burning of fossil fuels like coal and oil. When this happens, carbon dioxide gets released into the atmosphere. CO₂ is a colorless, odorless gas. It is essential for life on Earth and is produced naturally by plants in the process of photosynthesis. The burning of fossil fuels releases CO₂ into the atmosphere. CO₂ is not very soluble in water, so it does not dissolve easily in seawater, making it difficult to detect at sea. There are many benefits for society as a whole from removing CO₂ from the atmosphere, but there are also many problems associated with doing so. In this article I will examine these problems and look at several methods that could be used to remove carbon dioxide from the atmosphere. The most promising method for removing carbon dioxide from the atmosphere is probably direct air capture. This involves using a chemical process to extract CO₂ directly from the air and store it in a liquid or solid form. The most promising method for removing carbon dioxide from the atmosphere is probably direct air capture.

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Introduction:-

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Background

The atmospheric concentration of CO₂ has been increasing since the beginning of the Industrial Revolution due to burning fossil fuels. The concentration of carbon dioxide in the atmosphere rose from about 280 parts per million (ppm) before human industry began to more than 400 ppm in 2015. The concentration of CO₂ had reached 410 ppm

Corresponding Author:- Namesh Kumar

Address:- Regional Manager, Analyser Instrument Co. Pvt Ltd, Kota, Rajasthan, India.

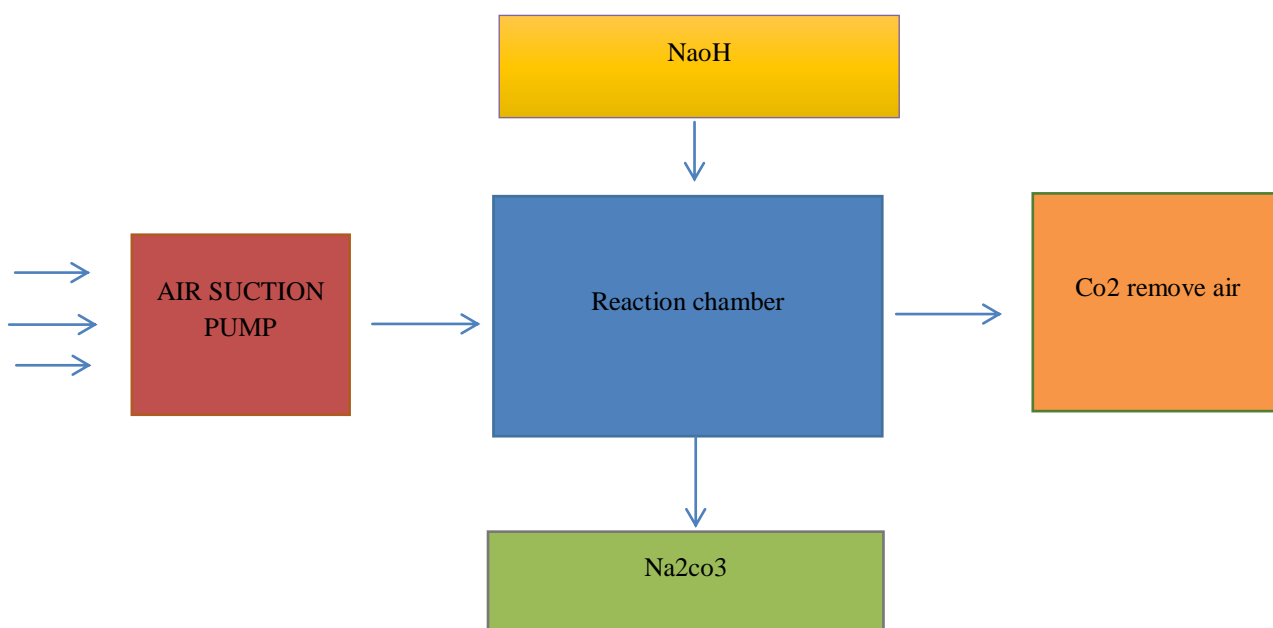
on April 1, 2017. During this time period there were many changes in weather patterns that affected crops worldwide because they could not adapt quickly enough to changes in rainfall patterns brought on by climate change caused by greenhouse gases such as CO₂.

Working

This project is for removal of CO₂ from atmosphere and make useful byproduct for industries. We have to use sodium hydroxide for reaction and make sodium carbonate (washing soda) as a byproduct. The process of system is firstly air suction pump take air to reaction chamber. In reaction chamber NaOH droplets mix with CO₂ gas and forms water and sodium hydroxide this process take 1-2 hours after that we take sodium hydroxide separate with water and use as washing soda industry as raw material.

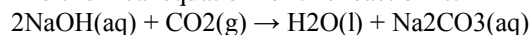
After that we filter out the water from washing soda. Then we will distillate the sodium carbonate by distillation, we have to keep heat on this process so that the product gas get high temperature and purify it by condensation steam which make our product purer than before.

Block diagram



Reaction

The chemical equation for this reaction is:



Sodium hydroxide reacts with carbon dioxide to form sodium carbonate, water and sodium hydroxide.

Advantage

1. Reduce green house effect and climate change.
2. Us byproduct for soap company as raw material from which cost of production goes low.
3. Reduce the effect of human health from climate change.

Conclusion:-

From this system we can remove CO₂ from air form by product sodium hydroxide and use as raw material for washing soda. And make environment clean and protect our environment from climate change.

For this project we will use carbon dioxide (CO₂), which is a major greenhouse gas, to produce sodium hydroxide (NaOH). Sodium hydroxide is an important chemical compound used in many industries such as plastics, paper,

rubber, soap, detergent and fertilizer production. It can be used to neutralize acids and bases in many industrial applications.

In order to reduce CO₂ emissions we will use sodium hydroxide as a source for CO₂ removal and supercritical water (SCW) as a waste product.

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