**Xiamen Rickman Chemical Technology Co., Ltd**

**Tel:+86 18750669524**

**Fax: 0595-82003557**

**Website: www.rickmanchemical.com**

**Email: info@rickmanchemical.com**

**Headoffice**

**Add:** 1267-8 Qianpu South Road, Siming District, Xiamen City Fujian China

**Quanzhou Branch office**

**Add:** Hengdali Building, Quanan North Road, Quanzhou , China

**Factory**

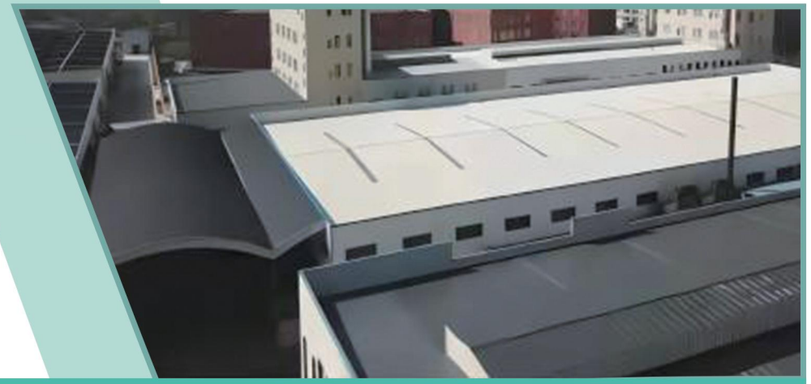
**Add:** Qitian Industrial Zone, Fujian , China

# At RICKMAN

We create defoamer chemistry for a better and more sustainable future.

Xiamen Rickman Chemical Technology Co.,Ltd

# Foreword



## FOUNDED IN 2013

Rickman engages in production, research and development, sales and service of defoamer.

With professional knowledge, rich experience, and the concept of innovation and development, Rickman owns a mature technical team and advanced production equipment.

The main products include defoamer, fungicide scale inhibitor and other products' series.

The comprehensive annual capacity can reach 30,000 tons. These products are widely used in pulp and paper , textile, industrial water treatment, paint and ink, oil and gas, agriculture, food, fermentation, industrial cleaning, metal processing and other fields.

**RICKMAN----The Chemical Company**



# Advantage

## Research and Development

Rickman set up an engineering technology center, who is responsible for defoamer and antifoam research and development technology. Our technical team is committed to developing new different defoamer solutions to meet any challenges of our partners and customers.

# Advantage

## Production Capacity

Annual production capacity is 30,000 tons.

The quality of foam control agents is essential to our company. As defoamer manufacturer, there is a mature quality inspection procedures to ensure quality of antifoam compliance with standard.

## Supply Channel

Rickman provides service for all over the world with technical support and abundant experience in customer service.



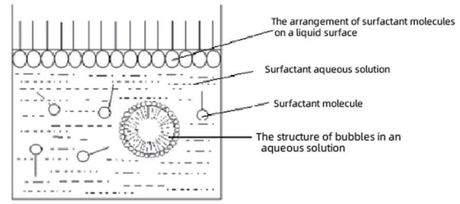
# Defoamers and Antifoams

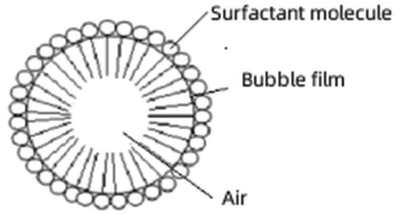
What is foam?

Bubbles and foams are generated by surface action.

Due to the action of surface tension, the membrane contracts into a ball, forming a bubble.

Because of the lifting force, bubbles rise to the liquid surface. When a large amount of bubbles gather on the surface, a foam layer is formed.




Generation Mechanism and Stability of Foam

Analysis of factors affecting the stability of foam:

（1） Low surface tension. The lower the surface tension, the easier it is to form foam;

（2） Concentration of surfactants.The higher concentration of surfactants,the more it accumulates on the surface of the foam, and the stronger the membrane;

（3） Size of foam itself

According to the formula

T = K / D2， T is the life of foam； D is the average diameter of foam; K is the correction coefficient.

As can be seen from the formula, the smaller the foam, the longer the life of the foam, the higher the stability.

# Rickman Defoamers Range

## Type of Rickman Defoamers:

01 Silicone defoamer

02 Polyether defoamer

03 Antifoam compound

04 Mineral oil defoamer

05 Powder defoamer

Rickman defoamers for foaming sytstem: water based defoamers and oil-based defoamers



# Applications of Rickman defoamer

- Textile Industry
- Pulp and Paper
- Water Treatment
- Construction and Building
- Oil and Gas
- Agriculture
- Laundry and Household
- Fermentation
- Paint and Ink
- Industrial Cleaning
- Metal Cutting Liquid
- Alumina

# Textile dyeing and Leather

## Textile Dyeing Process:

Water–based system is composed of dye and textile printing and dyeing auxiliaries. Under high–temperature, mechanical vibration and shear force, it's easy to form a lot of foam.
During mid temperature dyeing process, water–based system includes lots of dye, scouring agent, permeating agent and other surfactants. Because of mechanical vibration, water–based system is easy to form a lot of foam. Silicone or silicone–polyether defoamer are recommended. Because they have great antifoaming performances under mid or high temperature and have great strong acid &alkali resistance.
**Rickman recommendation: RK–82S, RK–561, RK63T, RK–900N, RK–100S, RK–83S**

## Textile Auxiliaries:

Textile auxiliary production always use a large amount of surfactants as basic material. With continuous heating and mechanical stirring, it's easy to form bubbles. Internal addition and external addition decide the defoamers' performances.
**Rickman recommendation:**
**RK–30N, RK–900N , RK–T60**
**RK–15S, RK–02P, RK–03P**
**RK–100S**



## TEXTILE PRINTING AND SIZING:

Textile pulping mainly includes starch, carboxyl methyl cellulose, methyl cellulose polyvinyl alcohol, polyvinyl acetate, and acrylate. Under shear force and with temperature and pH change, those macromolecular substances are easy to form bubbles. And during beating and stirring, print paste is easy to form foam. If foam is not dealt with promptly, print paste will appear white point and spot, or it will make fabric pattern color fuzz.

**Rickman recommendation: RK–15S, RK–203 RK–02P, RK–03P, RK–900N, RK–30N, RK–203, RK–30S, RK–0036**

Pre Treatment and After finish:

Pre–treatment: it needs desizing agent when product desizing, scouring&bleaching agent and detergent while bleaching&washing. For better permeation into the fabric, high temperature and strong alkali boiling–off are necessary, but they cause foam appearance.

After finish: it needs to add softening agent and keep continuous heating ,which is easy to form a lot of foam.

**Rickman recommendation: RK–23S, RK–900N , RK–100S, RK–110S**

RKM

# Pulp and Paper

## Paper Sizing and Coating:

Because agent itself is also a surfactant, which is mixed with air during operation. Paper Sizing defoamer is usually added at the sizing press. In internal sizing& surface sizing, we can consider the fatty alcohol and polyether defoamer. Paper coating defoamer is usually added during the formulation of coatings. Styrene-butadiene latex is the latex to make coated art paper coating and can easily cause foam when dispersing pigments or fillers at high speed. Mineral oil based defoamer is recommended for paper coating process.

Rickman recommendation: RK-50P, RK-0010, RK-300P, RK-203

## Pulp Washing Black Liquid:

Pulp preparation or pulp washing is one of the main process which forms foaming in paper making industry. Anionic surfactants are formed by chemical reaction between alkali and wood or Straw grass during cooking process. Silicone defoamer or non-silicone defoamer are usually used for pulp preparation.Silicone and non-silicone defoamer has it's own focus according to different raw materials.Silicone defoamer series are more efficient in pulp washing with hard wood and soft wood as raw materials. Silicone based defoamer series are usually continuously added to the filtered black liquor during pulp washing process.

Rickman recommendation: RK-10S, RK-20S, RK-5DS, RK-8455S



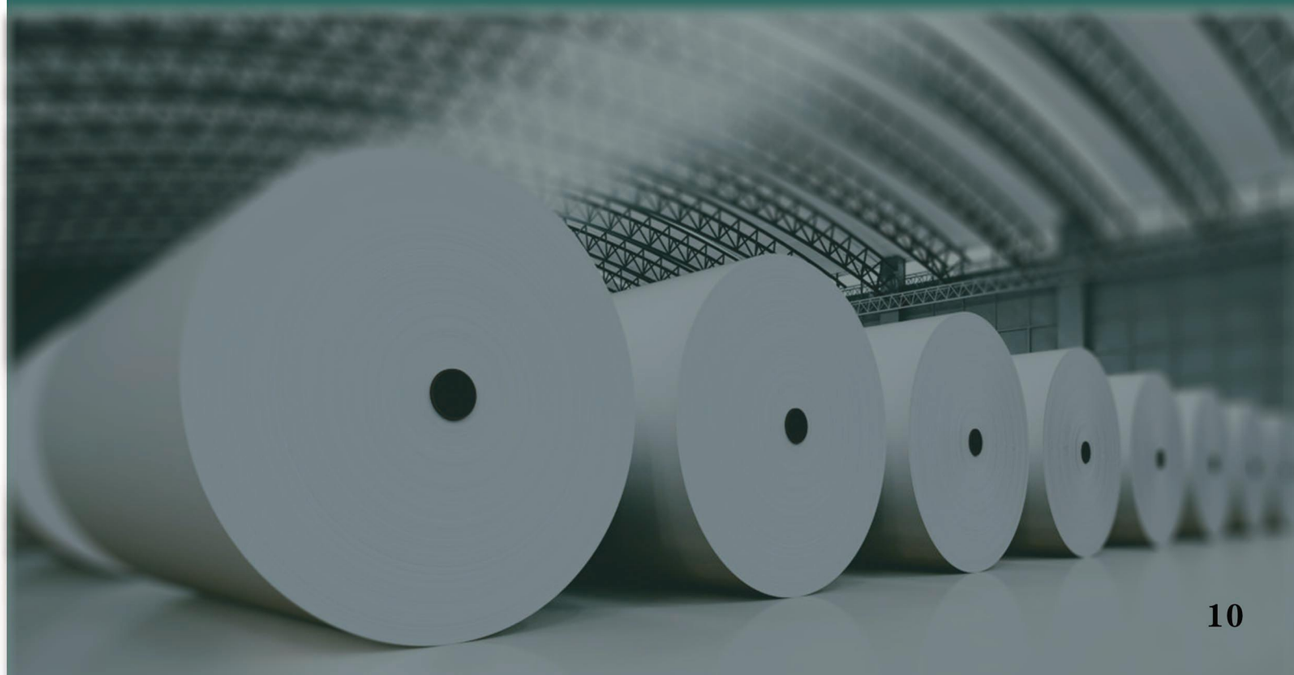
## Paper Machine:

Paper making process is an important process for paper forming. A lot of additives, such as sizing agent, retention agent, filter aid, wet strength agent, dry strength agent etc are to be used to form paper with certain performance. These additives are added in different dosing points. And it's easy to form foaming during white water circulation in closed system. Paper machine defoamer is usually added in the points with a lot foam, for instance, underwire white water chest or white water tank.


Defoamer will be added continuously in several dosing points to give full play of defoamer performance.It will not only achieve good performance but also save cost.

Rickman recommendation:

RK-F0020, RK-F0090, RK-F0080, RK-50P, RK-0010, RK-0080, RK-300P



# Water Treatment

In water and wastewater treatment industries, the fluids contain bacteria, chemicals, and other compounds hazardous to human health. The causes of foam in different water treatment plants are varied. Foam can be caused by biological activity, mechanical action, chemical contamination, surfactants or some polymer. Regardless of the cause, excessive foams are unacceptable and often interfere with operations.

## Rickman manufacture defoamers and antifoams for following water treatments:

- Sea water desalination
- Industrial wastewater treatment
- Industrial circulation water treatment
- Municipal sewage treatment
- Biological water treatment
- Reverse Osmosis water treatment
- Landfill leachate
- Membrane system

**Rickman recommendation: RK-8636, RK-1210S, RK-1215A, RK-10S, RK-0036, RK-400P, RK-500P, RK-700P, RK-800P, RK-883S, RK-F0080, RK-F0090**



# Construction and Building materials

Additives, material and stirred speed always lead to the foam appearance in construction. If the foam cannot disappear, the film shrinkage, and pinhole will be caused, which affects the quality and smooth appearance.

Therefore, Rickman defoamers play an important role for solving foam questions.

- Cement mortar
- Concrete
- Asbestos tile
- Fiber cement
- Gypsum
- Polycarboxylate superplasticizer
- Adhesives
- Diatom ooze

**Rickman recommendation: RK-1210S, RK-1215A, RK-800P, RK-600P, RK-0036, RK-04P, RK-104P, RK-07P**

# Oil and Gas

Oil and gas exploration, oil drilling, oil and gas separation, delayed coking, refining, and transportation are carried out in extremely different conditions. Bubbles can reduce the productivity, and create the safety and environmental pollution.

Therefore, defoamers are necessary to add to reduce or eliminated to increase productivity, enhance quality.

Silicone based and non-silicone based antifoaming agent from Rickman optimize the production, refining, and separation of oil and natural gas to make sure that the petrochemical material can be extracted as purely and efficiently as possible.

**Rickman recommendation: RK-400S, RK-30C, RK-8636, RK-700P, RK-0036**

# Agriculture

In agriculture, fertilizers and pesticides, and others are the basic necessary to feed every growing population. In the process of pesticides and fertilizers based on the phosphoric acid, sulphur bentonite, diammonium phosphate, because of temperature, stirring speed and equipment conditions, the air is contributed during production. Those unwanted foams can affect the productive capacity and products' quality.

**Rickman recommendation: RK-T35, RK-8636, RK-900N, RK-30N, RK-63B, RK-8KD**



# Laundry and Household

Consumers hope household detergents are fully functional, easy to handle and reduce water consumption. As very specialized and complex products, foam influence the products' efficiency and performance. This means that foam control agents is the necessary solutions for solving foam problem to make sure the quality household detergents.

Rickman offers a line of antifoams for every class of household detergents. Compound antifoams, antifoam emulsions and powder antifoams are useful to powder detergent/ laundry powder/ washing powder and all kinds of liquid detergent.

**Rickman recommendation: RK-06P, RK-106P, RK-900N, RK-33S, RK-30N, RK-63B**

# Fermentation

During the fermentation process, the foam–active substances, air and turbulences contribute the excessive foam. Generally, carbohydrates as material, are converted into sugar substrates, enzymes, starches and proteins, which promote the foam appearance. In addition, amino acids and proteins generated by microorganism can cause large of foam activity.

As a manufacturer of foam control agents, RICKMAN provides a series of defoamer solutions for molasses fermentation, ethanol/ alcohol fermentation, distilleries, sugar refineries etc.

Rickman recommendation: RK–8636, RK–F0080, RK–0010, RK–700P

# Paint and Ink

For many industries, excessive foam is a problem. It can cause vessels to overflow, interfere with processes and packaging, waste material and damage equipment. In paint and ink, foam and entrained air can be introduced a coating and ink by stirring and shearing during pigments, polymer grinding and package. Foam can contribute to surface defects, pinhole, eye fish, and final print quality. Our portfolio of defoamers includes mineral oil, silicone, synthetic non silicone defoamers for those applications.

Rickman recommendation: RK–170, RK–203, RK–900N, RK–1107, RK–0036, RK–857, RK–801, RK–817, RK–873, RK–840S

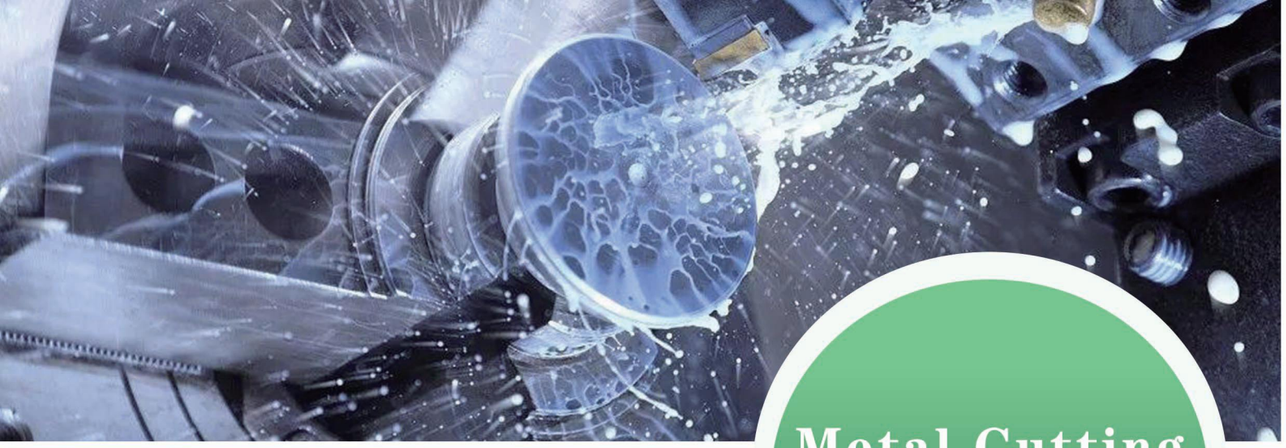


# Industrial Cleaning

Industrial cleaning has characteristics of saving energy, saving water and improving product quality. However, in the cleaning process, foam can be the main reason for the plant to stop. Defoamer as an economic product, has an important role in industrial cleaning. Defoamer is widely used in: beer bottle cleaning, circuit board cleaning, electroplating solution & electroplating cleaning, metal surface cleaning, steel plate cleaning, spray cleaning etc.

Rickman has a line of defoamer solutions to help customers to solve foam questions.

Rickman recommendation: RK–900N, RK–02P, RK–03P, RK–8636, RK–63B, RK–0036, RK–700P, RK–30N, RK–561



# Metal Cutting Liquid

Metal cutting liquid contains fully–synthetic cutting fluid, semi–synthetic cutting fluid, emulsified cutting fluid, and oil cutting fluid. It’ s used to cool and lubricate the metal processing. Due to the high shear and functional additives, the foam is contributed. The unwanted foam can cause reservoir overflows, unplanned downtime and equipment damage.

As successfully cases, the silicone antifoaming agents have proven their good compatibility with their system and persistent foam suppression performance.

**Rickman recommendation: RK–701M, RK–7510M, RK–7670M, RK–7470M**



In the process of alumina bayer process, especially by Bayer method, a large amount of foam is often produced in the mineral slurry, which reduces the decomposition speed of sodium aluminate solution, weakens the efficiency of evaporator, causes the increase of sodium carbonate content in the solution, reduces the flow of sand material, affects the coordination of production and loading workers. The foaming in the seed–sorting process of the settling tank will lead to the failure of the desired classification effect, even the failure to use the settling tank for classification treatment, which is not in line with the production process standards.

**Rickman recommendation: RK–900P**

# Alumina