Examples of water and exhaust gas improvements at painting facilities

Aience Co., Ltd.

Purification of refuse pond (automotive painting line)

- Circulating water type : Circulating water for painting
- Water tank : 50㎥
- Model : Aquablaster system

Problem

Customer wanted to minimize generation of putrid odors from refuse ponds of auto body painting lines.

Challenges

Minimizing putrid odors, lengthening the service life of circulating water, and lightening the load on final-stage wastewater treatment equipment.

Solutions

Fourteen Aquablaster AS-250 (previous model) units were installed in a 50-ton water tank.

Effects

The service life of circulating water, which could previously be used for only one month, was lengthened to three months, and putrid odors were virtually eliminated.

- Circulating water type : Circulating water for painting
- Water tank : 280㎥
- Model : Aquablaster system

Problem

Customer was seeking ways to address the generation of putrid odors, lighten the load on final-stage wastewater treatment equipment, and lengthen the service life of circulating water.

Challenges

Minimizing putrid odors, lengthening the service life of circulating water, and lightening the load on final-stage wastewater treatment equipment.

Solutions

In four 70-ton water tanks, totaling 280-tons, ten Aquablaster units were installed in Tank no. 2 and five units in Tank no.3.

Effects

Putrid odors were virtually eliminated and the service life of circulating water, which could previously be used for only one month, was lengthened to five months. Even so, the load on final-stage wastewater treatment equipment was lightened.

- Circulating water type : Circulating water for painting
- Water tank : 30㎥
- Model : Aquablaster system

Problem

When building a new construct construction equipment plant employing melamine-based paint, the customer was seeking a way to reduce refuse pond costs.

Challenges

It was hoped that maintenance work, which had been carried out once a month thus far, could be reduced to once every six months or so.

Solutions

Three new 10-ton circulating pits (refuse ponds) were constructed, and four Aquablaster units were installed in each one.

Effects

Operation continued for 14 months with absolutely no need for maintenance, cutting annual costs by almost ¥50 million.

Refuse pond purification (Other painting lines)

- Circulating water type : Circulating water for painting
- Water tank : 30㎥
- Model : Aquablaster system

Problem

At a painting plant for products such as household appliances, there were complaints from the community about odors from refuse ponds, and the speed of water quality deterioration was an issue as well.

Challenges

Eliminating complaints from the community and slowing deterioration speed.

Solutions

Aeration was carried out with Aquablaster AS-250 units installed in appropriate locations.

Effects

Complaints from the community were eliminated, and the time between water replacements was lengthened by a factor of three to five.

- Circulating water type : Waste liquid from plant (after coagulation)
- Water tank : 20㎥／day
- Model : Aquablaster system

Problem

When adding a new painting line, the customer wanted to minimize circulating water maintenance costs.

Challenges

Lengthening the periods between maintenance and preventing putrid odors.

Solutions

Aeration was carried out with six Aquablaster units installed in a 10-ton circulating water tank.

Effects

The replacement cycle of circulating water was lengthened dramatically compared to existing lines, and cost reductions were achieved.

- Circulating water type : Purification of circulating water for water-based painting
- Water tank : 10～30㎥／day
- Model : Aquablaster system

Problem

Circulating water for water-based paint rotted, and acetic acid odors pervaded the plant interior. The customer wanted to purify the circulating water to resolve the odor issue.

Challenges

In addition to improving the work environment, the customer hoped purification would enable reuse of circulating water.

Solutions

Tank aeration, coagulation precipitation and a belt press dryer were added, and the purified water stored in a storage tank.

Effects

The acetic acid odor was virtually eliminated, and the circulating water and coagulating agent proved to be highly compatible. In addition, the belt press dryer worked better than expected, and only a small amount of sludge with low water content was produced. The customer praised Aience products for accomplishing all this with a minimum of equipment.

Purification of booths for washing and no-pump painting

- Circulating water type : Painting booth
- Water tank : 4.0㎥
- Model : Sludge eater system

Problem

Painting booths for auto parts such as shock absorbers emitted odors of putrefying water and paint thinner, resulting in complaints from neighbors.

Challenges

Eliminating complaints from neighbors.

Solutions

The customer installed sludge eaters in each booth and observed their effectiveness.

Effects

Putrid odors were virtually eliminated, and complaints from neighbors ceased.

- Circulating water type : Painting booth
- Water tank : 3.0㎥
- Model : Sludge eater system

Problem

At a plant for painting of auto parts such as rear-view mirrors, the customer wanted to do away with putrid odors that triggered complaints from the community, and minimize the viscosity of sludge.

Challenges

Minimizing putrid odors to eliminate complaints from the community, and reduced the viscosity and volume of sludge produced.

Solutions

Sludge eaters were installed in each no-pump booth.

Effects

Putrid odors were virtually eliminated, and sludge viscosity was reduced. Also, pipe blockage of the circulation pump, which had stopped operating an average of eight times per month, was eliminated, and extremely smooth operation was achieved. Sludge volume was also reduced by approximately 30%.

- Circulating water type : Painting booth
- Water tank : 2.0㎥
- Model : Sludge eater system

Problem

Customer wanted to reduce putrefying water odors and sludge volume from a train-car painting booth.

Challenges

Customer wanted to boost work efficiency, reduce the volume of sludge and cut costs.

Solutions

Six sludge eaters were installed in a 2.0 ton water tank with a 3.7kW pump.

Effects

Putrid odors were virtually eliminated, and sludge volume was also reduced by approximately 30%-40%.

Paint drying oven exhaust gas deodorization equipment

- Circulating water type : Paint drying oven exhaust gas
- Water tank : 1050㎥／min
- Model : Deoriser DR-30W × 3 units

Problem

A combustion system was used for first-stage treatment of exhaust gas emitted by paint drying ovens, but the system was incapable of thorough treatment, and there were complaints from neighbors. The fumes from drying ovens also permeated the plant itself and created poor working conditions.

Challenges

Improving working conditions and eliminating complaints from neighbors.

Solutions

Three Deoriser DR-30W units were used to treat exhaust gas emitted at 700㎥/min and air volumes of 350㎥/min after combustion treatment.

Effects

Complaints from neighbors ceased, and it was possible to treat the leaked gas that permeated the upper areas of the plant and resolve the problem.

- Circulating water type : Paint drying oven exhaust gas
- Water tank : 50㎥／min
- Model : Deoriser DR-4W × 1 units

Problem

When a new plant was scheduled for construction, there was concern over the ill effects of exhaust gas from paint drying ovens on others in the vicinity.

Challenges

Customer wanted to treat and emit exhaust gas from paint drying ovens at low cost.

Solutions

Rather than combustion equipment, one Deoriser DR-4W unit was used to treat exhaust gas emitted at volumes of 50㎥/min, which was mixed into the overall mass of exhaust gas.

Effects

In three years of operation, there has been absolutely no odor-related trouble.

- Circulating water type : Paint drying oven exhaust gas
- Water tank : 150㎥／min
- Model : Deoriser DR-16W × 1 units

Problem

For the new plant, the Environmental Department of the local authorities requested that measures be taken to deal with odors of exhaust gas from paint drying ovens.

Challenges

Customer wanted to treat and emit exhaust gas from paint drying ovens at low cost.

Solutions

One Deoriser DR-16W unit was used to treat exhaust gas.

Effects

In five years of operation, despite highly concentrated emissions of exhaust gas, there has been no odor-related trouble. Running costs have been kept low as well, with maintenance carried out just once every two or three months.

Circulating water purification equipment installation examples

Examples of water and exhaust gas improvements at painting facilities

Major customers	Model	Purpose / Application
DAIHATSU head plant industry	Groundwater purification equipment	Removal of iron and manganese
DAIHATSU head plant industry	Purification equipment for circulating water for electrodeposition gas scrubber	Reduction of aldehyde gases
DAIHATSU head plant industry	Purification equipment for circulating water for light-vehicle leak inspections	Circulating water service life lengthened from one week to over one year
DAIHATSU head plant industry	Painting booth (B) circulating water purification equipment	Reduction of sludge, number of cleanings required, and odors
DAIHATSU ryuoh plant industry	Purification equipment for circulating water for light-vehicle leak inspections	Reduction of putrid odors and number of cleanings required
DAIHATSU head plant industry	Purification equipment for circulating water for light-vehicle leak inspections	Circulating water service life lengthened from one week to over one year
DAIHATSU head plant industry	Painting booth (C) circulating water purification equipment	Reduction of sludge, number of cleanings required, and odors
Miyoshi Paint Industry	Painting booth circulating water purification equipment	Reduction of sludge, number of cleanings required, and odors
Yamagiwa International	Painting booth circulating water purification equipment	Reduction of sludge, number of cleanings required, and odors
Kawasaki Heavy Industries, Ltd. Akashi factory	Painting booth circulating water purification equipment	Reduction of sludge, number of cleanings required, and odors
Nishikawa kasei	Painting booth circulating water purification equipment	Reduction of sludge and number of cleanings required
Nihon Anodizing Co.,Ltd.	Painting booth waste liquid purification equipment	Reduction of industrial waste volumes
Kanto Auto Works, Ltd. Higashi fuzi factory	Painting booth circulating water purification equipment	Reduction of sludge, number of cleanings required, and odors
Nissan Shatai Syonan first factory	Purification equipment for circulating water for light-vehicle leak inspections	Reduction of putrid odors and number of cleanings required
HITACHI Kasado Mechanics	Painting booth circulating water purification equipment	Reduction of sludge, number of cleanings required, and odors
HITACHI Automotive Products	Painting booth circulating water purification equipment	Auto parts paint drying oven
Nissan Shatai(repeat)	Purification equipment for circulating water for light-vehicle leak inspections	Reduction of putrid odors and number of cleanings required
TSUBAKI EMERSON CO.	Painting booth circulating water purification equipment	Reduction of sludge, number of cleanings required, and odors
YANMAR Biwa factory	Painting booth circulating water purification equipment	Reduction of sludge, number of cleanings required, and odors
SHOWA	Painting booth circulating water purification equipment	Reduction of sludge, number of cleanings required, and odors
Nissan Shatai(repeat)	Purification equipment for circulating water for light-vehicle leak inspections	Reduction of putrid odors and number of cleanings required
TOYOTA industries corporation	Painting booth circulating water purification equipment	Reduction of putrid odors / Purification of circulating water
Dia Molding Co.,LTD. South factory	Painting booth circulating water purification equipment	Reduction of sludge, number of cleanings required, and odors
SHOWA(repeat)	Painting booth circulating water purification equipment	Reduction of sludge, number of cleanings required, and odors
Yachiyo Industry Co., Ltd. Yokkaichi factory	Purification equipment for circulating water for light-vehicle leak inspections	Reduction of putrid odors and number of cleanings required
MITSUBISHI FUSO TRUCK AND BUS CORPORATION	Purification equipment for circulating water for existing deodorization equipment	Reduction of number of cleanings required and volume of water used
MORIROKU HOLDINGS COMPANY, LTD. Suzuka factory	Painting booth circulating water purification equipment	Reduction of sludge, number of cleanings required, and odors
ICHIKOH INDUSTRIES, LTD. Fuzioka factory	Painting booth circulating water purification equipment	Reduction of sludge, number of cleanings required, and odors
Kobe Bankin Kogyo	Painting booth circulating water purification equipment	Reduction of sludge, number of cleanings required, and odors
Kobelco Construction Machinery Co., Ltd.	Painting booth circulating water purification equipment	Reduction of sludge, number of cleanings required, and odors
NISSAN DIESEL MOTOR CO.,LTD. Kamio factory	Painting booth circulating water purification equipment	Reduction of sludge, number of cleanings required, and odors
SUZUKI Kosai factory	Purification equipment for circulating water for light-vehicle leak inspections	Reduction of putrid odors and number of cleanings required
Gifu Auto Body Co., Ltd.	Painting booth circulating water purification equipment	Reduction of sludge, number of cleanings required, and odors
SUZUKI thai factory	Purification equipment for circulating water for light-vehicle leak inspections	Reduction of putrid odors and number of cleanings required
TOYOTA motor corporation tahara factory	Purification equipment for circulating water for light-vehicle leak inspections	Reduction of putrid odors and number of cleanings required
SHOWA CORPORATION Nagoya factory	Painting booth circulating water purification equipment	Reduction of putrid odors
KANSAI GAS METER CO.,LTD	Painting booth circulating water purification equipment	Reduction of sludge, number of cleanings required, and odors
NIPPON FRUEHAUF COMPANY,LTD Atsugi factory	Purification equipment for circulating water for light-vehicle leak inspections	Reduction of putrid odors and number of cleanings required
YANMAR Construction Machinery CO., LTD.	Painting booth circulating water purification equipment	Reduction of sludge, number of cleanings required, and odors

Drying oven exhaust gas treatment equipment installation examples

Examples of water and exhaust gas improvements at painting facilities

Major customers	Model	Purpose / Application
DAIHATSU MOTOR CO., LTD.	Modification of existing deodorization equipment	Electrodeposition paint drying oven exhaust gas treatment
Tsukuda Industry corporation.	DR-9S deodorization equipment (made of SUS)	Electrodeposition paint drying oven exhaust gas treatment
WATANABE INDUSTRY Co.,Ltd	DR-16W deodorization equipment (made of SUS)	Electrodeposition paint drying oven exhaust gas treatment
TOCALO Co.,Ltd.	DR-6W deodorization equipment (made of SUS)	Drying oven exhaust gas deodorization
MITSUBISHI FUSO TRUCK AND BUS CORPORATION	DR-9W deodorization equipment (made of SUS)	Electrodeposition paint drying oven exhaust gas treatment
Osaka DENSO Industry	DR-2S deodorization equipment (made of SUS)	Drying oven exhaust gas deodorization equipment
YOROZU	DR-6W deodorization equipment (made of SUS)	Electrodeposition paint drying oven exhaust gas treatment
Kobe Bankin Kogyo	DR-4W deodorization equipment (made of SUS)	Electrodeposition paint drying oven exhaust gas treatment
KYOKUTO KAIHATSU KOGYO CO.,LTD.	DR-4W deodorization equipment (made of SUS)	Electrodeposition paint drying oven exhaust gas treatment
MITSUBISHI FUSO TRUCK AND BUS CORPORATION(repeat)	Three separate-type DR-30W deodorization equipment units	Electrodeposition paint drying oven exhaust gas treatment
NIKKATSU ELECTRIC WIRE WORKS, LTD.	DR-6-7 deodorization equipment	Drying oven exhaust gas deodorization equipment
NAKAYAMAKOGYOU CO., LTD.	DR-6-7 deodorization equipment	Drying oven exhaust gas deodorization equipment

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