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EMISSIONS MONITORING PLAN

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1.0 INTRODUCTION

1.1 Document Objectives

This Emissions Management and Monitoring Plan has been prepared by Walker Resource Management Limited ("WRM") on behalf of Plater Chemicals Limited ("Plater Chemicals") in accordance with The Environmental Permitting (England and Wales) Regulations 2016 ("EPR Regulations").

The objective of this document is to provide a set of procedures for the management and monitoring of emissions associated with the operation of Plater Chemicals' inorganic chemicals manufacturing facility, including their directly associated natural gas boiler, located at Plater Chemicals, High Street West, Glossop, Derbyshire, SK13 8ES (the "Site").

This Emissions Management and Monitoring Plan includes:

i. a review of potential emission sources from the Site operations;
ii. an overview of the Site's management approaches to mitigate the release of potential emissions; and,
iii. a monitoring plan for measuring and recording emissions at the Site.

This document has been produced in accordance with the following documents:

- Environmental Permitting – General Guidance Manual on Policy and Procedures for A2 and B Installations
- Directive (EU) 2015/2193 (Medium Combustion Plant Directive)

1.2 Site Context

The primary function of Plater Chemicals is the production of metal salts. The production process is undertaken within c.14 enclosed buildings, with the Site footprint covering a cumulative area of approximately 20,500m^2. The processing infrastructure includes (but is not limited to) reactors, spray dryers, spray coolers, vacuum dryers, blenders, storage vessels, mixing vessels and utility vessels. To minimise impacts to air quality, emission release points are via filters and scrubbers, including:

i. Gas boiler;
ii. Carbon filters serving the acetic acid storage tanks;
iii. Bag filter serving the calciner plant;
iv. Sodium hydroxide scrubber serving the hydrochloric acid tank; and,

v. Sulphuric acid scrubber serving the ammonia tank.
vi. Cooling tower

2.0 EMISSIONS ASSESSMENT & MANAGEMENT

2.1 Gas Boiler

Boiler technical information is presented within Table 1**,** below. The emission limit value of NOx from the boiler is presented in Table 2. The system meets European Instructions No. 98/37/EC, 97/23/EC,73/23/EC, 89/336/EC, and European Standards EN 292- 1, EN 292-2, EN 12953, EN 60204-1, and EN 50081-1. Emissions monitoring for NOx shall be carried out on an annual basis by an MCERTS accredited organisation.

Table 1 - Gas Boiler Technical Specification

Gas Boiler Technical Information	
Make	Ruston
Model	Thermax Two
Thermal Capacity	5.3MWth
Efficiency	90%
Control System	Dunphy Radiotronic 6,000 Series
Variable Heat Load	Yes
Stack Height	15 metres above ground level

Table 2 – Gas Boiler Emissions Monitoring Requirements

Substance	Frequency of monitoring	Emission limit Value (mg/Nm^3)	Emissions Monitoring Method
NO_x	Annual	200	BS EN 14792

The Ruston Thermax Two gas boiler is housed within the boiler house located to the southwest of the weighbridge. The gas boiler has a net thermal input rating of 5.3MWth. The gas boiler is used to satisfy the heating demands of the Site, including the spray dryers and cooler. The boiler has a control system with an alarm. A trained Site operative starts the boiler at 4am on Monday morning and shuts the boiler down on Friday morning.

2.2 Acetic Acid Emissions

Each acetic acid storage vessel is connected to a carbon filter through which acetic acid vapours are filtered prior to being released to air. Activated carbon is highly porous, which

gives it a large surface area for adsorbing acetic acid vapours from the efflux. The carbon filter effectively controls the air quality at the point of release.

Management of the carbon filters includes performance monitoring and the establishment of a maintenance schedule. The carbon filters are regularly inspected for signs of damage, such as cracks, clumping, or degradation of the carbon material. Furthermore, the area directly surrounding the carbon filters is regularly checked to ensure that it is kept clear of dust and debris.

The carbon filter system undergoes regular inspection, monitoring and maintenance to ensure optimal performance and therefore the following frequency of monitoring shall be undertaken:

- The air quality released by the carbon filter shall be monitored frequently through Draeger tubes installed downstream of the carbon filters. Visual checks are undertaken daily to check whether a colour change within the tube has occurred. The colour change is read against a scale on the tube to quantify concentration levels. If the concentrations levels increase, this indicates that the carbon filter requires changing;
- A visual inspection of the carbon filter will form part of a weekly visual inspection and cleaning schedule, checking the carbon filter for signs of damage and removing the build up of any dust or debris; and,
- The air quality released by the shall be monitored on an annual basis to ensure that the emissions are below the emission threshold of acetic acid vapours as stated within the Site environmental permit.

The following emissions monitoring for Acetic Acid shall be carried out from all carbon filters by an MCERTS accredited organisation on an annual basis.

Table 3 - Acetic Acid Emissions Monitoring Requirements

Substance	Frequency of monitoring	Emission limit Value (mg/Nm^3)	Emissions Monitoring Method
Acetic Acid	Annual	80	CEN TS 13649

2.3 Hydrochloric Acid Emissions

The hydrochloric acid storage vessel is connected to a sodium hydroxide scrubber which treats the air displaced from the storage vessel during filling and emptying serving to

effectively reduce the levels of hydrogen chloride being released to the atmosphere. When sodium hydroxide reacts with hydrochloric acid, they undergo a neutralisation reaction.

Management of the sodium hydroxide scrubber includes performance monitoring and the establishment of a maintenance schedule. The sodium hydroxide scrubber components such as the piping, seals, tanks and spray nozzles shall be regularly inspected for signs of damage, such as corrosion, leaks, and clogs within the spray nozzle that may reduce scrubbing efficiency and efficacy. The sodium hydroxide scrubber shall also be regularly checked for the build-up of solids and salts that may precipitate in the scrubber.

The sodium hydroxide scrubber system requires regular inspection, monitoring and maintenance to ensure optimal performance and therefore the following frequency of monitoring will be undertaken:

- Continuous monitoring of the scrubber solution pH level. This monitoring system is alarmed if the PH level reduces below the critical limit for pH;
- A weekly inspection of the condition of the sodium hydroxide scrubber components shall be undertaken and recorded within the Scrubber Weekly Inspection Form, which shall also be used to record and any remedial action as necessary; and,
- The air quality released by the sodium hydroxide scrubber shall be monitored on an annual basis to ensure that the emissions are below the emission threshold of hydrogen chloride as stated within the Site environmental permit.

The following emissions monitoring for Hydrochloric Acid shall be carried out from the sodium hydroxide scrubber by an MCERTS accredited organisation on an annual basis.

Table 4 - Hydrochloric Acid Emissions Monitoring Requirements

Substance	Frequency of monitoring	Emission limit Value (mg/Nm^3)	Emissions Monitoring Method
Hydrochloric Acid	Annual	10	EN 1911

2.4 Ammonia Emissions

The ammonia storage vessel is connected to a sulphuric acid scrubber which treats the air displaced from the storage vessel during filling and emptying serving to effectively reduce the levels of ammonia gas being released to the atmosphere. Acidic solutions are used to remove

alkaline components, e.g. ammonia. The dosing of the acid is done by means of pH regulation.[1]

Management of the sulphuric acid scrubber includes performance monitoring and the establishment of a maintenance schedule. The sulphuric acid scrubber components such as the piping, seals, tanks and spray nozzles shall be regularly inspected for signs of damage, such as corrosion, leaks, and clogs within the spray nozzle that may reduce scrubbing efficiency and efficacy. The sulphuric acid scrubber shall also be regularly checked for the build-up of solids and salts that may precipitate in the scrubber.

The sulphuric acid scrubber system requires regular inspection, monitoring and maintenance to ensure optimal performance and therefore the following frequency of monitoring will be undertaken:

- Continuous monitoring of the scrubber solution pH level. This monitoring system is alarmed if the PH level increases above critical limit for pH;
- A weekly inspection of the condition of the sulphuric acid scrubber components shall be undertaken and recorded within the Scrubber Weekly Inspection Form, which shall also be used to record and any remedial action as necessary; and,
- The air quality released by the sulphuric acid scrubber shall be monitored on an annual basis to ensure that the emissions are below the emission threshold of ammonia as stated within the Site environmental permit.

The following emissions monitoring for Ammonia shall be carried out from the sulphuric acid scrubber by an MCERTS accredited organisation on an annual basis.

Table 5 - Ammonia Emissions Monitoring Requirements

Substance	Frequency of monitoring	Emission limit Value (mg/Nm^3)	Emissions Monitoring Method
Ammonia	Annual	1.2	EN ISO 21877

[1] Best Available Techniques (BAT) Reference Document for Production of Speciality Inorganic Chemicals 2007, Industrial Emissions Directive 2010/75/EU (Integrated Pollution Prevention and Control)

2.5 Dust Emissions

A bag filter is deployed on Site to capture dust produced through the processing of catalytic converter material in the calciner plant. Fabric filters, often referred to as bag filters, are constructed from porous woven or felted fabric through which gases are passed to remove dust (including PM10 and PM2.5). Removal efficiencies for dust typically range from 95 % to more than 99.9 %.[2]

Management of the bag filter includes the establishment of a cleaning and maintenance schedule. The bag filter components such as the exterior of the baghouse, ductwork, and seals shall be regularly inspected for signs of damage, leaks, or dust buildup, which may indicate worn or damaged filter bags or seals. The condition of the bag shall be regularly checked for wear, tears, abrasion, or holes.

When working at maximum capacity the bag filter will require regular inspection, monitoring and maintenance to ensure optimal performance and therefore the following frequency of monitoring will be undertaken:

- Air flow is monitored continuously to measure the difference in pressure on either side of a dust filter. A high-pressure drop often indicates that a filter is clogged or inefficient and would highlight to the Site manager that the bag filter requires replacing;
- A weekly inspection of the condition of the bag filter components shall be undertaken and recorded within the Bag Filter Inspection Form, which shall also be used to record and any remedial action as necessary; and,
- The air quality released by the bag filter shall be monitored on an annual basis to ensure that the particulate emissions are below the emission threshold as stated within the Site environmental permit.

The following emissions monitoring for dust shall be carried out from the bag filter by an MCERTS accredited organisation on an annual basis.

Substance	Frequency of monitoring	Emission limit Value (mg/Nm^3)	Emissions Monitoring Method
Dust	Annual	10	BS EN 13284

[2] Best Available Techniques (BAT) Reference Document for Production of Speciality Inorganic Chemicals 2007, Industrial Emissions Directive 2010/75/EU (Integrated Pollution Prevention and Control)

2.6 Carbon Dioxide Emissions

Some of the chemicals produced on site are alkali metal fluorides. The reactor is charged with materials via a mixer hopper. The suspension is heated, cooled and then discharged to a purification system. This process emits carbon dioxide with trace amounts of hydrogen fluoride. It is considered that no periodic monitoring is carried out on this emission point as there are no emission limit values for carbon dioxide and the fact that the hydrogen fluoride emission is negligible.

2.7 Cooling Tower

The cooling tower provides cooling water to the processes that are carried out on site. The only emission from the cooling tower is that of water vapour so no monitoring is considered required on this emission point.

3.0 ENVIRONMENTAL RISK ASSESSMENT

3.1 Gas Boiler

Table 6 below details the Environmental Risk Assessment for point source emissions resulting from gas boiler operations at Plater Chemicals. The Risk Assessment focuses on potential emissions from the effluent that is released to air via the gas boiler stack. The magnitude of each risk is associated with the effluent is identified and evaluated. This is then followed by a description of the management techniques actioned to mitigate the risk, proceeded by an assessment of the residual risk rating related to the release of specific pollutants from the emissions release point.

Table 6 – Gas Boiler - Point Source Emissions Risk Assessment

Pollutant Model			Judgement				Action	
Source	**Pathway**	**Receptor**	**P**	**C**	**M**	**Justification of Magnitude**	**Risk Management**	**Residual Risk**
Emissions – Air pollutants	Aerial dispersion	Staff, local Site users, Public and nearby sites.	Med	Med	Med	The boiler is fuelled by natural gas which contains trace amounts of dust and SO_2. The boiler has measures in place to limit release of NO_x	• A maintenance schedule has been produced in accordance with the manufacturer's instructions. The boiler shall be serviced at least annually by a trained service engineer. • Staff operating and maintaining the boiler shall receive appropriate training and instructions.	Low

Pollutant Model			Judgement				Action	
Source	Pathway	Receptor	P	C	M	Justification of Magnitude	Risk Management	Residual Risk
						Incomplete combustion causes risk of elevated emissions e.g. during start-up and shut down.	• Staff shall be aware of how to identify and mitigate elevated or abnormal emissions. • The pipes through which the fuel is transported to the boiler shall be maintained to prevent the escape of unburnt natural gas. • Good quality feedwater ensures impurities do not lead to sediment or corrosion and subsequently reduce boiler efficiency. • The boiler stack height is sufficient to prevent emissions influencing ground-level air pollution concentrations.	
Emissions from Plant - dust	Aerial dispersion	Staff, local Site users, Public and nearby sites.	Low	Low	Low	Low – The boiler is fuelled by natural gas which contains trace amounts of particulates.	• Continued use of natural gas as fuel. • The boiler will be regularly serviced by a suitably trained operative as per the manufacturer's instructions.	Very Low

Pollutant Model			Judgement				Action	
Source	**Pathway**	**Receptor**	**P**	**C**	**M**	**Justification of Magnitude**	**Risk Management**	**Residual Risk**
							• There is no emission limit value for dust in the MCPD for boilers fuelled by natural gas.	
Emissions from Plant – NO_x	Aerial dispersion	Staff, local Site users, Public and nearby protected sites.	Med	Med	Med	Med – There is potential for Staff, local Site users and the public to be regularly exposed to NO_x.	• The boiler control system will ensure efficient combustion, leading to a reduction in fuel consumption and flue gas emissions. • Fuel/air mix will be set up to ensure the boiler operates efficiently and does not regularly cycle on and off. • Regular servicing of the boiler by a trained operative as per the manufacturer's instructions. • Emission limit values for NOx are in place for the boiler (200mg/Nm^3 at 3% O_2).	Low
Emissions from Plant – SO_2	Aerial dispersion	Staff, local Site users, Public and	Low	Low	Low	Low - The Plant are fuelled by natural gas	• The boiler control system promotes efficient combustion, leading to a	Very Low

Pollutant Model			Judgement				Action	
Source	Pathway	Receptor	P	C	M	Justification of Magnitude	Risk Management	Residual Risk
		nearby protected sites.				which contains trace amounts of sulphur.	reduction in fuel consumption and flue gas emissions. ● Fuel/air mix will be set up to ensure the boiler operates efficiently and does not regularly cycle on and off. ● Regular servicing of the boiler by a trained operative as per the manufacturer's instructions. ● There is no emission limit value for SO_2 in the MCPD for boilers fuelled by natural gas.	
Emissions from Plant – CO	Aerial dispersion	Staff, local Site users, Public and nearby protected sites.	Low	Low	Low	Low - The Plant operate efficiently.	● Fuel/air mix is set up to ensure that the boiler operates efficiently and does not regularly cycle on and off. ● The boiler and stack shall be maintained in line with written maintenance schedule and in accordance with the manufacturer's instructions.	Low

Pollutant Model			Judgement				Action	
Source	Pathway	Receptor	P	C	M	Justification of Magnitude	Risk Management	Residual Risk
							• Regular servicing of the boiler by a trained operative as per the manufacturer's instructions. • There is no emission limit value for CO in the MCPD for boilers fuelled by natural gas.	

3.2 Carbon Filters

Table 7 below details the Environmental Risk Assessment for point source emissions resulting from the carbon filters at the Plater Chemicals Site. The Risk Assessment focuses on potential emissions from the effluent that is released to air via the carbon filters. The magnitude of each risk is associated with the effluent is identified and evaluated. This is then followed by a description of the management techniques actioned to mitigate the risk, proceeded by an assessment of the residual risk rating related to the release of specific pollutants from the emissions release point.

Table 7 – Carbon Filters Point Source Emissions Risk Assessment

Pollutant Model			Judgement				Action	
Source	Pathway	Receptor	P	C	M	Justification of Magnitude	Risk Management	Residual Risk
Emissions – Air pollutants	Aerial dispersion	Staff, local Site users, Public and nearby sites.	Med	Med	Med	Each acetic acid storage vessel is connected to a carbon filter through which acetic acid vapours are filtered prior to being released to air. Activated carbon is highly porous, which gives it a large surface area for adsorbing acetic acid vapours from the effluent. The carbon filter effectively controls the air quality at the point of release.	• A maintenance schedule has been produced in accordance with the manufacturer's instructions. • The carbon filters are regularly inspected for signs of damage, such as cracks, clumping, or degradation of the carbon material. • Staff operating and maintaining the carbon filters shall receive appropriate training and instructions. • Staff shall be aware of how to identify and mitigate elevated or abnormal emissions. • The air quality released by the carbon filters shall be monitored on a continuous basis through Draeger tubes installed downstream of the	Low

Pollutant Model			Judgement				Action	
Source	Pathway	Receptor	P	C	M	Justification of Magnitude	Risk Management	Residual Risk
							carbon filters. Visual checks are undertaken daily to check whether a colour change within the tube has occurred. The colour change is read against a scale on the tube to quantify concentration levels. If the concentrations levels increase, this indicates that the carbon filter requires changing	
Emissions from Plant – acetic acid vapours	Aerial dispersion	Staff, local Site users, Public and nearby sites.	Med	Med	Med	Each acetic acid storage vessel is connected to a carbon filter through which acetic acid vapours are filtered prior to being released to air. Activated carbon is highly porous, which gives it a large surface area for adsorbing	• A maintenance schedule has been produced in accordance with the manufacturer's instructions. • The carbon filters are regularly inspected for signs of damage, such as cracks, clumping, or degradation of the carbon material. • Staff operating and maintaining the carbon filters shall receive appropriate training and instructions.	Low

Pollutant Model			Judgement				Action	
Source	Pathway	Receptor	P	C	M	Justification of Magnitude	Risk Management	Residual Risk
						acetic acid vapours from the effluent. The carbon filter effectively controls the air quality at the point of release.	• Staff shall be aware of how to identify and mitigate elevated or abnormal emissions. • The air quality released by the carbon filters shall be monitored on a continuous basis through Draeger tubes installed downstream of the carbon filters. Visual checks are undertaken daily to check whether a colour change within the tube has occurred. The colour change is read against a scale on the tube to quantify concentration levels. If the concentrations levels increase, this indicates that the carbon filter requires changing	

3.3 Sodium Hydroxide Scrubber

Table 8 below details the Environmental Risk Assessment for point source emissions resulting from the sodium hydroxide scrubbers at the Plater Chemicals Site. The Risk Assessment focuses on potential emissions from the effluent that is released to air via the sodium hydroxide scrubbers. The magnitude of each risk is associated with the effluent is identified and evaluated. This is then followed by a description of the management techniques actioned to mitigate the risk, proceeded by an assessment of the residual risk rating related to the release of specific pollutants from the emissions release point.

Table 8 – Sodium Hydroxide Scrubber - Point Source Emissions Risk Assessment

Pollutant Model			Judgement				Action	
Source	Pathway	Receptor	P	C	M	Justification of Magnitude	Risk Management	Residual Risk
Emissions – Air pollutants	Aerial dispersion	Staff, local Site users, Public and nearby sites.	Med	Med	Med	Each hydrochloric acid storage vessel is connected to a sodium hydroxide scrubber, which effectively reduces the levels of hydrogen chloride being released to the atmosphere. When sodium hydroxide reacts with hydrochloric acid, they	• A maintenance schedule has been produced in accordance with the manufacturer's instructions. • The sodium hydroxide scrubber components such as the piping, seals, tanks and spray nozzles shall be regularly inspected for signs of damage, such as corrosion, leaks, and clogs within the spray nozzle that may reduce scrubbing efficiency and efficacy.	Low

Pollutant Model			Judgement				Action	
Source	Pathway	Receptor	P	C	M	Justification of Magnitude	Risk Management	Residual Risk
						undergo a neutralisation reaction.	• The sodium hydroxide scrubber shall also be regularly checked for build-up of solids and salts that may precipitate in the scrubber. • Staff operating and maintaining the sodium hydroxide scrubbers shall receive appropriate training and instructions. • Staff shall be aware of how to identify and mitigate elevated or abnormal emissions. • The scrubber solution pH level shall be monitored continuously and is alarmed if the pH level reduces below the critical limit for pH.	
Emissions from Plant – hydrogen chloride	Aerial dispersion	Staff, local Site users, Public and nearby sites.	Med	Med	Med	Each hydrochloric acid storage vessel is connected to a sodium hydroxide scrubber,	• A maintenance schedule has been produced in accordance with the manufacturer's instructions.	Low

Pollutant Model			Judgement				Action	
Source	Pathway	Receptor	P	C	M	Justification of Magnitude	Risk Management	Residual Risk
						which effectively reduces the levels of hydrogen chloride being released to the atmosphere. When sodium hydroxide reacts with hydrochloric acid, they undergo a neutralisation reaction.	• The sodium hydroxide scrubber components such as the piping, seals, tanks and spray nozzles shall be regularly inspected for signs of damage, such as corrosion, leaks, and clogs within the spray nozzle that may reduce scrubbing efficiency and efficacy. • The sodium hydroxide scrubber shall also be regularly checked for build-up of solids and salts that may precipitate in the scrubber. • Staff operating and maintaining the sodium hydroxide scrubbers shall receive appropriate training and instructions. • Staff shall be aware of how to identify and mitigate elevated or abnormal emissions.	

Pollutant Model			Judgement				Action	
Source	Pathway	Receptor	P	C	M	Justification of Magnitude	Risk Management	Residual Risk
							• The scrubber solution pH level shall be monitored continuously and is alarmed if the pH level reduces below the critical limit for pH. • Emission limit value for hydrogen chloride is in place for the scrubber.	

3.4 Sulphuric Acid Scrubber

Table 9 below details the Environmental Risk Assessment for point source emissions resulting from the sulphuric acid scrubbers at the Plater Chemicals Site. The Risk Assessment focuses on potential emissions from the effluent that is released to air via the sulphuric acid scrubbers. The magnitude of each risk associated with the effluent is identified and evaluated. This is then followed by a description of the management techniques actioned to mitigate the risk, proceeded by an assessment of the residual risk rating related to the release of specific pollutants from the emissions release point.

Table 9 – Sulphuric Acid Scrubber - Point Source Emissions Risk Assessment

Pollutant Model			Judgement				Action	
Source	Pathway	Receptor	P	C	M	Justification of Magnitude	Risk Management	Residual Risk
Emissions – Air pollutants	Aerial dispersion	Staff, local Site users, Public and nearby sites.	Med	Med	Med	The ammonia storage vessel is connected to a sulphuric acid scrubber, which effectively reduces the levels of ammonia gas being released to the atmosphere. Acidic solutions are used to remove alkaline components, e.g. ammonia. The dosing of the acid is done by means of pH regulation.[3]	• A maintenance schedule has been produced in accordance with the manufacturer's instructions. • The sulphuric acid scrubber components such as the piping, seals, tanks and spray nozzles shall be regularly inspected for signs of damage, such as corrosion, leaks, and clogs within the spray nozzle that may reduce scrubbing efficiency and efficacy. • The sulphuric acid scrubber shall also be regularly checked for build-up of solids and salts that may precipitate in the scrubber.	Low

[3] Best Available Techniques (BAT) Reference Document for Common Waste Gas Management and Treatment Systems in the Chemical Sector., Industrial Emissions Directive 2010/75/EU (Integrated Pollution Prevention and Control)

Pollutant Model			Judgement				Action	
Source	Pathway	Receptor	P	C	M	Justification of Magnitude	Risk Management	Residual Risk
							• Staff operating and maintaining the sulphuric acid scrubber shall receive appropriate training and instructions. • Staff shall be aware of how to identify and mitigate elevated or abnormal emissions. • The scrubber solution pH level shall be monitored continuously and is alarmed if the pH level increases above the critical limit for pH.	
Emissions from Plant – ammonia gas	Aerial dispersion	Staff, local Site users, Public and nearby sites.	Med	Med	Med	Each ammonia storage vessel is connected to a sulphuric acid scrubber, which effectively reduces the levels of ammonia gas being released to the atmosphere.	• A maintenance schedule has been produced in accordance with the manufacturer's instructions. • The sulphuric acid scrubber components such as the piping, seals, tanks and spray nozzles shall be regularly inspected for signs of damage,	Low

Pollutant Model			Judgement				Action	
Source	Pathway	Receptor	P	C	M	Justification of Magnitude	Risk Management	Residual Risk
						Acidic solutions are used to remove alkaline components, e.g. ammonia. The dosing of the acid is done by means of pH regulation.[4]	such as corrosion, leaks, and clogs within the spray nozzle that may reduce scrubbing efficiency and efficacy. ● The sulphuric acid scrubbers shall also be regularly checked for build-up of solids and salts that may precipitate in the scrubber. ● Staff operating and maintaining the sulphuric acid scrubber shall receive appropriate training and instructions. ● Staff shall be aware of how to identify and mitigate elevated or abnormal emissions. ● The scrubber solution pH level shall be monitored continuously and is alarmed if	

[4] Best Available Techniques (BAT) Reference Document for Common Waste Gas Management and Treatment Systems in the Chemical Sector., Industrial Emissions Directive 2010/75/EU (Integrated Pollution Prevention and Control)

Pollutant Model			Judgement				Action	
Source	Pathway	Receptor	P	C	M	Justification of Magnitude	Risk Management	Residual Risk
							the pH level increases above the critical limit for pH.	

3.5 Dust Filters

Table 10 below details the Environmental Risk Assessment for point source emissions resulting from the dust filters at the Plater Chemicals Site. The Risk Assessment focuses on potential emissions from the effluent that is released to air via the dust filters. The magnitude of each risk associated with the effluent is identified and evaluated. This is then followed by a description of the management techniques actioned to mitigate the risk, proceeded by an assessment of the residual risk rating related to the release of specific pollutants from the emissions release point.

Table 10 – Dust Filter - Point Source Emissions Risk Assessment

Pollutant Model			Judgement				Action	
Source	Pathway	Receptor	P	C	M	Justification of Magnitude	Risk Management	Residual Risk
Emissions – Air pollutants	Aerial dispersion	Staff, local Site users, Public and nearby sites.	Med	Med	Med	Bag filters are deployed on Site to capture dust through the processing of catalytic converter material.	• A maintenance schedule has been produced in accordance with the manufacturer's instructions. • The bag filter components such as the exterior of the	Low

Pollutant Model			Judgement				Action	
Source	Pathway	Receptor	P	C	M	Justification of Magnitude	Risk Management	Residual Risk
						Fabric filters, often referred to as bag filters, are constructed from porous woven or felted fabric through which gases are passed to remove dust (including PM10 and PM2.5). Removal efficiencies for dust typically range from 95 % to more than 99.9 %.	baghouse, ductwork, and seals shall be regularly inspected for signs of damage, leaks, or dust buildup, which may indicate worn or damaged filter bags or seals. The condition of the bag shall be regularly checked for wear, tears, abrasion, or holes. • Staff operating and maintaining the bag filter shall receive appropriate training and instructions. • Staff shall be aware of how to identify and mitigate elevated or abnormal emissions. • Air flow is monitored continuously to measure the difference in pressure on either side of a dust filter. A high-pressure drop often indicates that a filter is clogged or inefficient and would highlight	

Pollutant Model			Judgement				Action	
Source	Pathway	Receptor	P	C	M	Justification of Magnitude	Risk Management	Residual Risk
							to the Site manager that the bag filter requires replacing.	
Emissions from Plant - dust	Aerial dispersion	Staff, local Site users, Public and nearby sites.	Med	Med	Med	Bag filters are deployed on Site to capture dust through the processing of catalytic converter material at the calciner plant. Fabric filters, often referred to as bag filters, are constructed from porous woven or felted fabric through which gases are passed to remove dust (including PM10 and PM2.5). Removal efficiencies for dust typically range from 95 % to more than 99.9 %.	• A maintenance schedule has been produced in accordance with the manufacturer's instructions. • The bag filter components such as the exterior of the baghouse, ductwork, and seals shall be regularly inspected for signs of damage, leaks, or dust buildup, which may indicate worn or damaged filter bags or seals. The condition of the bag shall be regularly checked for wear, tears, abrasion, or holes. • Staff operating and maintaining the bag filters shall receive appropriate training and instructions.	Low

Pollutant Model			Judgement				Action	
Source	Pathway	Receptor	P	C	M	Justification of Magnitude	Risk Management	Residual Risk
							• Staff shall be aware of how to identify and mitigate elevated or abnormal emissions. • Air flow is monitored continuously to measure the difference in pressure on either side of a dust filter. A high-pressure drop often indicates that a filter is clogged or inefficient and would highlight to the Site manager that the bag filter requires replacing.	

The point source emission Environmental Risk Assessment identifies several possible sources of Medium-magnitude risks:

- Emissions – Air Pollutants;
- Emissions from boiler – NOx;
- Emissions from dust filter – dust;
- Emissions from carbon filters – acetic acid vapours;
- Emissions from sulphuric acid scrubber – ammonia; and,
- Emissions from sodium hydroxide scrubber – hydrogen chloride vapours.

Risk abatement actions have been identified for the sources detailed. With these mitigation measures in place, the residual risk ratings for all sources are reduced to Low risk.

The point source emission Environmental Risk Assessment identifies various possible sources of Low-magnitude risks. Risk abatement actions have been identified to ensure that these sources of emissions remain at Low Risk or are even reduced to Very Low Risk.