

5.0 NON-TECHNICAL SUMMARY – Integrated Pollution Control Licence Application

5.1 General

Bristol-Myers Squibb Cruiserath (BMS) is a bulk pharmaceutical manufacturing facility which is owned and operated by Swords Laboratories trading as Bristol-Myers Squibb, Cruiserath (the Company), at Cruiserath, Mulhuddart, Dublin 15. It is operated in close co-ordination with the existing BMS plant based at Swords, Co. Dublin. The site commenced manufacturing operations in 2003, and runs 7 days a week, 24 hours per day, 365 days per annum.

BMS is a diversified research-based health care company with approximately 44,000 employees worldwide. In 2005 it had sales of \$20.2 billion.

The full planning permission application was submitted to Fingal County Council on 24th August 1999 and a decision was granted by Fingal County Council on 30th September 1999 (Register Reference No. F99A/0871). The planning permission decision was subject to 18 conditions, which have been fully complied with and a response on these conditions was issued to Fingal County Council on 24th February, 2000.

The Company is now applying to the EPA for a Review to its Integrated Pollution Control (IPC) Licence and the Company's activities fall within Classes 5.6, 5.16 and 11.1 of the scheduled activities of the EPA Acts 1992 & 2003. This is an update to the non-technical summary of the IPC Licence Application, Register No. P0552-01.

Socio-Economic Aspects

Over the past 30 years, the pharmaceutical and speciality fine chemical sector have become an important factor to the economic, industrial culture and high technical service and support sectors in Ireland.

The BMS Cruiserath facility can be seen in the context of the ongoing development of this sector in Ireland. Irish employees have a highly valued skill base and Irish management and technical personnel are now at senior level within the major corporations.

The sector is characterised by having a high level of 'anchorage' in that it is less likely to relocate due to factors such as cheap labour availability. The sector also has the highest investment in environmental control and employs the highest number of environmental personnel. Among all industrial sectors with significant environmental emissions it exhibits a very high level of compliance with IPC licence conditions.

Local Strategic Context

The area north of Mulhuddart has been targeted for industrial development by the Government and Local Authorities for the last number of years. As a result, infrastructure in the area has been undergoing extensive upgrading in the form of roads, water supply, sewerage, natural gas, electricity supply, and telecommunications.

BMS Contribution to Local and National Economy

BMS has enjoyed a successful presence in Ireland since 1964. The new plant involved an investment of \$500 million and more than 1700 jobs were created over the construction period. The Company currently employs 165 people and the sister plant at Swords currently employs 360 people and has an approximate payroll of €16 million and contributes €18 million annually to the Irish economy by way of purchased goods and services. It makes a further significant contribution to the economy through direct tax payments, which amounted to €129 million in the three years to the end of 1999.

Socio-Economic Impact

165 additional permanent jobs were created since the facility opened. The employment effects from the Cruiserath plant can be estimated using the “multiplier effect”, that is for every one full time direct employee, there is a spin-off of another job. Thus it can be estimated that there are at least another 165 jobs created in the general economy.

5.2 Plant, Processes and Procedures

Operational Information Requirements

The 160 acre, greenfield site provides integrated manufacturing facilities for the production of active pharmaceutical ingredients.

The Site Master Plan (**Attachment N^o. B.2**) is divided into four distinct areas, as follows:

- The administration, cafeteria and laboratory area
- Site utilities area
- A central manufacturing zone for production buildings
- Warehousing, solvent storage, recovery and waste treatment zone.

The site consists of the following major components, connected by site roads and pipe racks:

- Production building
- Warehouse/raw materials storage
- Bulk tankage and drum store
- Utilities
- Solvent recovery
- Environmental protection, biological and incineration waste treatment systems
- Administration, cafeteria, laboratory and engineering buildings
- Car parking and security
- Fire protection and firewater retention

Production Building

The production building is designed as a flexible, multipurpose manufacturing plant capable of producing a range of pharmaceutical intermediates and final active ingredient products. Most are dry solids, but the occasional liquid intermediate is made.

Warehouse/Raw Material Storage

A high-bay warehouse is used to store dry raw materials, intermediates, final products and packaging materials. Facilities are included for loading and unloading various types of road vehicles as well as clean areas where solids are weighed out to form batch quantities for the production plant and final product packaging.

Bulk Tankage and Drum Store

32 storage vessels are provided for the bulk storage of fresh and used solvents returned from the plant awaiting recovery by distillation or destruction by incineration, and recovered solvents from distillation. A covered drum storage area is also provided.

Utilities

The basic utilities supplied to the site are electrical power, natural gas and water.

Steam is generated for use in the manufacturing process and distillation plant heating duties and building heating in winter.

In order to ensure safe operations, all solvent containing vessels have inert nitrogen atmospheres. Liquid nitrogen is also used as a coolant.

The electrical supply is via a main substation located in the utility area.

Conventional package boilers are used to generate steam from natural gas and this is distributed around the site. Backup oil low sulphur diesel is used as a stand-by in the event of failure of the gas supply to the site.

Cooling water is generated in conventional evaporative cooling towers and pumped to users such as the refrigeration packages and the condensers of the distillation columns.

Solvent Recovery

Pure solvents used in the manufacturing process become mixed with other solvents and chemicals reagents. Where feasible, a distillation process is used to separate and recover the solvent from the mixture. The recovered solvents are then used in subsequent manufacturing processes.

Environmental Protection, Biological and Incineration Waste Treatment Systems

Whilst every effort is made to recover solvents used in the process, some of the mixtures are too complex to separate economically and on-site destruction is considered the most environmentally effective solution for disposal. Also the processes generate waste gas streams which are odorous or contain traces of volatile organic compounds (VOC) as well as some hazardous solid wastes which again cannot be easily disposed of off-site. An incineration plant is used to treat the waste streams and includes heat recovery in order to recover energy from the high calorific value organic wastes. This unit is state of the art and is specifically designed to operate to European Union (EU) and Irish EPA standards.

The processes also generate aqueous waste streams containing trace organic and other chemical matter that cannot be directly discharged to sewer. Hence a biological wastewater treatment system is installed to remove these contaminants in order to meet licensed discharge limits. All process equipment operates as closed systems and vent to the incineration plant for VOC, odour, and inorganic chemical removal. Low temperature condensers are used at the reactors and dryers to

reduce vapour phase concentrations and recover the solvents at source. The odorous off-gas from the biological wastewater treatment plant is also sent to the incinerator.

Administration, Cafeteria and Laboratory and Engineering Buildings

These are located at the front of the site, and provide its administrative and amenity centre. The laboratory building includes both quality control and environmental laboratories. The engineering building houses the maintenance workshop area, a spare parts store, offices, the medical department and the emergency response unit.

Car Parking and Security

The car park for the site has been located adjacent to Cruiserath Road at the front of the site. The car park is designed for approximately 300 spaces.

The security building at the entrance to the site provides the central focal point for the site security systems including the fire alarm panel, the security cameras, and the personnel access monitoring system.

The site is surrounded all around its boundary by a 2 to 3m high metal security fence. Directly inside this is a security track.

Fire Protection and Firewater Retention

The plant fire protection system consists of sprinklers or foam monitors in all areas where flammable liquids are stored and handled. Smoke and heat detectors are installed throughout the plant. All of the systems are monitored by a fire alarm panel which provides visual and audible alarms and indicates appropriate fire zones.

A dedicated fire water supply with firewater pumps delivers water to the sprinkler systems and hydrants. A back-up water supply is also provided.

In the event of a fire on site, firewater run-off is directed to the fire water retention pond.

5.3 Raw Materials and Products

The products that are manufactured at Cruiserath are intermediates and finished active ingredients. The bulk active material is shipped to BMS formulation and dosage form plants worldwide where the finished formulation is made either as a tablet, capsule or in injectable form.

Although the facility is designed as a flexible, multi-purpose facility, Irbesartan is the only product currently manufactured at the Cruiserath Site. Irbesartan is a member of the new group of medicines known as Angiotensin II Receptor Antagonists (AIIAs) used in the treatment of hypertension (high blood pressure). Hypertension is one of the most common diseases affecting the general population, with an incidence of about 14%.

The BMS mission is to extend and enhance human life by providing the highest quality health and personal care products. To this end more than \$1.5 billion annually is invested in research and development.

Among the other BMS products currently manufactured or sold in Ireland at present are:

Lipostat – used as an adjunct to diet, Lipostat is the only cholesterol-lowering drug of its kind proven to help prevent first heart attacks. Lipostat is also proven to reduce the need for surgery to clear blocked coronary arteries (such as bypass or angioplasty) and to actually lower the risk of death from heart disease.

Capoten – indicated for the treatment of hypertension, congestive heart failure, diabetic nephropathy and post heart attack.

Taxol – indicated for the treatment of advanced breast and ovarian cancers, as well as AIDS-related Kaposi's sarcoma.

Dutonin – indicated for the treatment of depression.

Paraplatin – the better tolerated platinum agent used for treatment of ovarian cancer.

Zerit – indicated for the treatment of HIV-infected patients who have received prolonged prior zivovudine therapy.

Videx – indicated for the treatment of HIV infection when anti-retroviral therapy is warranted.

Monopril – used for the treatment of hypertension and heart failure.

BuSpar – indicated for the treatment of persistent anxiety. BuSpar offers a welcome non-addictive treatment option for sufferers of persistent anxiety.

Ultracef – a cephalosporin indicated for the treatment of pharyngitis, tonsillitis, urinary tract infections and skin/skin structure infections caused by susceptible strains of micro-organisms.

A full list of raw materials associated with all of the products that could be manufactured at Cruiserath was included in Tables 10 (i), (ii) and (iii) of the original application. This has been updated for new products in the BMS pipeline including production raw materials and organic solvents, utility chemicals, laboratory chemicals and chemicals used in the incinerator and wastewater treatment plant. These tables have been included as part of **Attachment N° A.1**. All new products in the BMS pipeline including production raw materials and organic solvents, utility chemicals, laboratory chemicals and chemicals used in the incinerator and wastewater treatment plant in the tables are highlighted in **bold**.

Energy Use Review

An energy use review has been carried out and details of energy conservation methods used at the Cruiserath plant are included in Section G of this Review Application.

5.4 Seveso Regulations

Bristol-Myers Squibb Corporate Philosophy

BMS Worldwide Medicines is committed to protecting its employees, the public, its facilities, and environment against the hazards associated with chemical processing. The Corporate Process Safety and Life Safety and Loss Prevention Programmes require BMS facilities to maintain a high standard of safety in its operations.

During the development stage, all Company processes undergo a safety evaluation which includes thermal hazard analysis, dust characterisation and a hazard and operability study. The purpose of this evaluation is to identify any potential problems at an early stage in order to avoid problems at a manufacturing scale.

Status of the Cruiserath Plant in Relation to the Seveso Regulations

The prevention of major industrial hazards is controlled at European Union (EU) level. This legislation is implemented by the commonly known “Seveso” Directive 82/501/EEC as amended by 87/216 EEC & 88/610/EEC and Council Directive 96/82/EC as amended by 2003/105/EC. These regulations were brought into force by the Irish Regulations SI No. 292 of 1986, SI No. 194 of 1989, SI No. 21 of 1992, SI No. 476 of 2000, SI No. 402 of 2003 and SI No. 74 of 2006. These regulations are aimed at the prevention of major accidents which might result from certain industrial activities and with the limitation of their consequences for man and the environment. The Cruiserath site, as an installation for the production, processing or treatment of organic or inorganic chemicals, falls within the definition (Article 1) of an industrial activity for implementation of the directive. Under Articles 3 and 4 of the Directive, the Company is obliged to:

- Take all measures necessary to prevent major accidents and to limit their consequences for man and the environment.
- Prove to the competent authority (Health and Safety Authority) that they have identified existing major-accident hazards, adopted the appropriate safety measures, and provided the persons working on the site with information, training and equipment in order to ensure their safety.

These conditions are fulfilled at the Cruiserath site along with all the requirements of the 2005 Health Safety and Welfare at Work Act. The “Top Tier” (Article 5) conditions of the Directive relating to a full scale emergency plan do not apply to the Cruiserath site, as the quantities of processing material at the site are below the thresholds for its implementation.

The 1996 Directive came into force on 3rd February 1997 and has been adopted into Irish law through SI No. 476 of 2000. Article 9 of the Directive relates to ‘Top Tier Seveso Sites’ which has requirements relating to safety management and emergency planning. The Cruiserath site inventory of chemicals is below that for application of Article 9 and this condition is expected to be maintained.

Safety and Hazard and Operability Studies (HAZOP)

The Company has developed a comprehensive Safety Statement for the Cruiserath site which sets out the arrangements that are in place to safeguard the safety and health of its employees and neighbouring communities and to prevent damage to the Company’s facilities and to the local environment.

Employees are required to report all accidents, incidents and near misses to their supervisor, no matter how minor. This requirement is formalised by an in-house procedure and is part of BMS Corporate Procedures. Recommendations made on Accident/Incident/Near/Miss reports is periodically reviewed and tracked for closure.

The site undertakes a variety of audits and inspections to ensure safe working conditions exist and suitable programmes are in place to foster safe work practices. A site emergency response plan has been developed and specifies the emergency

response requirements for the plant. Emergency response objectives, action plans and responsibilities are set down in this procedure. The Company is committed to providing voluntary assistance to the Local Authority at an incident, should the need arise and has in place an on-going evaluation process for qualifying carriers, which transport goods to and from Company facilities. The evaluation process emphasises carrier safety, fitness and regulatory compliance.

The emergency response plan specifies the action to be taken by employees on discovering a fire. This includes activating fire alarms, evacuation requirements, use of fire extinguishers and notifying Dublin Fire Brigade. Fire training sessions are held regularly and cover practical fire extinguisher operations, a review of plant emergency plans for handling fire situations and fire prevention training.

The plant is designed and operated in such a manner as to minimise the risk of fire or explosion in the storage and handling of flammable materials. Flammable materials are confined to sealed systems of vessels and pipes. Bulk storage tanks are nitrogen blanketed and distillation columns are sprinkler protected. Nitrogen gas is used in all processing equipment to create an inert atmosphere. Electrical equipment designed and rated for use in hazardous locations is used and bonding and grounding of non-conductive pipework and equipment in the process area reduces the risk of build-up of static electricity.

HAZOPs are carried out when a new product is introduced, a significant process change is undertaken, and a major modification is undertaken on the plant.

In support of the Seveso regulations, HAZOP studies have been carried out throughout the design of the facility. Details of this programme were included in Attachment 11 of the original IPC Licence application.

5.5 Emissions to Atmosphere

The main emissions to atmosphere from the Cruiserath site are the main boilers, the incinerator and the back-up Cryogenic Condenser. In the event of incinerator shut-down, the cryogenic condenser and carbon bed adsorption system are utilised. These were fully detailed and described in Attachment 12 of the original application.

All of the gaseous vapours containing chemicals from the production building, the solvent recovery plant and the tank farm are directed to the incinerator. Micropolluted air containing trace chemicals/odours from the process area and the wastewater treatment plant (WWTP) are also directed to the incinerator. The incinerator is state of the art design and complies with European Union and EPA requirements.

The back-up VOC system is put into operation in the event of incinerator shut-down so that the site can continue to operate and meet required air emission limits at all times. Details of minor emission sources, potential emission sources and fugitive emissions are also included in Attachment 12.

In order to assess the impact of the Cruiserath site, predictive air dispersion modelling was undertaken. The impact of the predicted ground levels of individual pollutants on the surrounding environment was assessed and the maximum 1-hr ground level concentrations (GLC; $\mu\text{g}/\text{m}^3$) of a range of individual pollutants, including sulphur dioxide (SO_2), nitrogen dioxide (NO_2), suspended particulates and lead, produced from the incinerator, boiler and cryogenic condenser unit stacks

using actual meteorological data collected at Dublin Airport during 1997 was predicted by air dispersion modelling.

The maximum predicted ground level concentrations of the individual pollutants for all modelling scenarios considered were low and well within existing and proposed air quality standards or guidelines. The model predicted the maximum GLC of the individual pollutants that would occur under worst case operating and meteorological conditions. Consequently, for most of the time, the average GLC is lower than the predicted maxima. Therefore, based on the emission values used, it is anticipated that the NO₂, SO₂, total hydrocarbon and particulates, hydrogen chloride, hydrogen fluoride, metals, dioxin and benzene emissions produced from the various stack sources will not have any adverse effects on the surrounding environment.

5.6 Emissions to Surface Water

The developed part of the site is provided with an integrated surface water drainage system. The system is designed to capture rainfall from all areas of the site from which there may be potential for chemical contamination and if necessary divert these flows to the wastewater treatment plant. All of these areas are contained and collected rain water can be pumped to the wastewater treatment plant via the Fire Water Retention pond. The major source of potentially contaminated water is the tank farm, solvent recovery and chemical tanker discharge areas, and rainfall arising in these areas is transferred to the wastewater treatment plant.

Under normal circumstances, rain water drains by gravity from the site system to the storm drain and bypasses the fire water retention pond. If contamination is detected, the surface rain water is diverted to the fire water retention pond. This contaminated water is then pumped to the wastewater treatment plant or public sewer.

In the case of fire, the high rate sprinkler flows are collected in the site storm drain which is diverted to the fire water retention pond. From here, it can be pumped over a period of time to the wastewater treatment plant or to the public sewer.

5.7 Emissions to Sewer

The chemical processes used in the Cruiserath facility generate a range of aqueous waste streams containing small levels of various inorganic and organic components. There is also a range of other aqueous wastes arising from process plant operations that contain low levels of organic contaminants. These streams are biodegradable and biological treatment by a two-stage activated sludge plant is used to treat these effluent streams to a suitable standard for sewer discharge. The WWTP was fully described in Attachment 14 of the original IPC Licence application.

The treated effluent does not have an adverse effect on the Dublin main sewer or Ringsend treatment plant, or the receiving water.

5.8 Emissions to Ground

In 1998, the Company commissioned a due diligence investigation of the Cruiserath site. In 1999, a further site investigation was carried out. Subsoils in the area are thought to be relatively thin due to the presence of shale and limestone outcrop in the eastern part of the site.

Groundwater

The limestone is considered a locally important aquifer that is used for industrial supply and irrigation in the Dublin Region. Groundwater abstractions are documented in the Geological Survey of Ireland's (GSI) well database. Groundwater was encountered on the Cruiserath site at shallow depth within the weathered fractured limestone's upper surface. Results of soil and groundwater sampling suggest no significant contamination at the Cruiserath site.

Protection of Soil and Groundwater

All organic solvents, waste solvents and mother liquors, acids and bases are stored in above ground tanks in protected bunds. The use of good engineering practices is adopted in relation to valves, pumps and flanges in order to minimise leaks.

Drainage Systems

All process drainage systems are located above ground in order to protect the soil and groundwater with the exception of drains from the laboratory and warehouse buildings which is double contained or equivalent underground lines.

Groundwater Monitoring

10 Groundwater monitoring wells are located at various points around the main site.

Fire Water Containment

In the event of a fire on site, firewater run-off is directed to the storm water system and is diverted to the fire water retention pond.

5.9 Noise Emissions

The vast majority of noise generating equipment is located internally. The existing daytime measured noise levels from background sources (mainly traffic) are higher than the measured noise level contribution from the site, thus any noise level due to the Cruiserath site is not perceptible at the nearest noise sensitive receptors. The measured night-time noise levels show slight increases. An increase in noise levels due to the Cruiserath site is not perceptible at these receptors.

5.10 Waste Management

BMS Worldwide Medicines Group Pollution Prevention Policy follows a waste management policy which focuses on reducing pollution by means of:

- *Source Reduction*
- *Avoidance of Toxic Materials*
- *Elimination/Substitution of Toxic Materials*
- *Control Technology*
- *Good Operating Practices*
- *Employee Awareness and Training*

In accordance with EU and National policy on resolving waste management on site or as close as practicable, as far as possible this design of the facility sought to integrate all functions on site. In this way, the minimum amount of waste leaves the site.

Hazardous Wastes

A detailed evaluation of all technical resources, recycle and treatment options was pursued to identify the best available technology (BAT) solutions in accordance with European Union Integrated Pollution Prevention and Control (IPPC) criteria.

Waste streams containing organic solvents are generated from manufacturing processes. Organic solvents are generally recovered in the solvent recovery plant and re-used in the manufacturing process. Where on-site solvent recovery cannot be conducted due to capacity, technological or economic reasons, on-site incineration of the waste streams can be carried out. The on-site incineration system at Cruiserath is also used to incinerate selected waste streams that are transported from the Swords Plant.

Process waste streams containing low concentrations of organic solvents are sent to the wastewater treatment plant for biological oxidation. Other aqueous wastes which require treatment, that originate from other areas of the site, are sent to the wastewater treatment plant for disposal.

Non-Hazardous Wastes

General non-hazardous refuse from the cafeteria, offices and other areas of the site that cannot be recycled is sent to an off-site local authority landfill. Other wastes are recovered where practicable or otherwise disposed of in accordance with the regulations.

Acceptance Criteria for On-site Incineration

The specification and performance of the incinerator complies with the EU Directive on Incineration of Hazardous Waste (2000/76/EC) as implemented by SI No. 275 of 2003.

The design includes for the maximum 'worst case' volume of air to be handled including the provision of expansion requirements.

Periodic sampling and analysis is used to confirm the performance of the incinerators and compliance with agreed emission limits.

Solvent Recovery Systems

The solvent recovery plant consists of equipment to purify and remove contaminants from organic solvents so that they can be re-used in the manufacturing processes. The solvent recovery systems are provided to purify as many of these contaminated solvent streams as is economically feasible.

Transportation of Wastes

Relatively few waste streams are sent off-site for disposal from Cruiserath, and these are mainly solid waste streams. This significantly reduces truck movements. Some wastes are transported from the Swords Site to the Cruiserath site. There are limited waste disposal facilities at the Swords Plant, and there is a lack of space to develop such facilities. In keeping with the European Union philosophy on the proximity principle for disposal of wastes, the transportation of wastes is over a much shorter distance, thus minimising the potential for incidents during shipping.

5.11 Monitoring and Sampling Points

All monitoring and sampling is carried out as required under IPC Licence Register No. P0552-01.

5.12 Environmental Considerations

Many of the environmental considerations which were made with respect to the use of cleaner technology for the Cruiserath site are listed in the EPA BATNEEC Guidance Note, and these are listed in Attachment 19 of the original Licence application and are summarised in Section D6 of the Review application. These include technologies for load minimisation, containment of emissions, recovery and recycling, treatment of air emissions, treatment of water emissions, and treatment and disposal of wastes.

The elimination or reduction of waste at source is the most effective method of waste minimisation and this is the basis of the BMS Worldwide Medicines Group Pollution Prevention Programme. Opportunities for the elimination or reduction of waste at source are continuously investigated by the Manufacturing Technology Group. This Group is dedicated to process optimisation through a number of avenues and has an excellent track record of waste reduction. Many examples of this waste minimisation programme are included in Attachment 19 of the original IPC Licence application.

5.13 Accidental Emissions

The Emergency Response Plan specifies the action to be taken by employees on discovering a fire. This includes activating fire alarms, evacuation requirements, use of fire extinguishers and notifying Dublin Fire Brigade. Operating instructions and Material Safety Data Sheets specify emergency response requirements for fire or spill control.

Fire response training sessions are held regularly. The training covers practical fire extinguisher operations, a review of plant emergency plans for handling fire situations and fire prevention training. Fire evacuation drills are held regularly to familiarise employees with evacuation requirements and to ensure employee counts are completed effectively.

Each of the operating shifts at Cruiserath has an emergency response team, which is made up of employees. Emergency response team members are trained regularly by external personnel to a high standard.

The plant fire protection system consists of sprinkler installation in all areas where flammable liquids are stored and handled, with the exception of the tank farm which has foam monitors. Smoke and heat detectors are installed throughout the plant. All of the systems are monitored by a central fire alarm panel which provides visual and audible alarms and indicates appropriate fire zones.

A dedicated fire water supply consisting of a fire main loop and fire water pumps delivers water to sprinkler systems or fire hydrants. A back-up water supply is also provided.

An Emergency Response Unit was installed which houses an emergency response vehicle, emergency response team equipment and clothing and a fire alarm panel.

The plant is designed and operated in such a manner as to minimise the risk of fire or explosion in the storage and handling of flammable materials. Bulk storage tanks are nitrogen blanketed and distillation columns are sprinkler protected. Nitrogen gas is used in all processing equipment to create an inert atmosphere. Electrical equipment designed and rated for use in hazardous location is used and bonding

and grounding of non-conductive pipework and equipment in the process area minimises the risk of build-up of static electricity.

Details of the emergency response plan and the fire protection philosophy are included in Section F of the Review Application.

5.14 Statutory Requirements

Section I of the Review application provides details on how the requirements of Section 83(5)(a)(i) to (iv) of the EPA Acts, 1992 & 2003 are met.

5.15 Cessation, De-commissioning and Post-Closure Care

A procedure has been developed, primarily based on the BMS Corporate Acquisitions/Divestiture Procedure for Cessation of Activity and the associated remediation of the Cruiserath site. Section H of the Review Application provides further details.

5.16 Site Management and Control

An environmental management programme (EMP) has been developed for the Cruiserath site. This include the proposed site organisational chart, the responsibilities for environmental management, the management and responsibilities for the operation and control of all abatement systems on-site, calibration and maintenance management systems, waste control management systems, the Company's quality control system, the Company's Responsible Care Statement and an environmental performance assessment.

5.17 Conclusion

In conclusion, state of the art environmental abatement equipment is installed and the site has an active waste minimisation programme. No significant pollution is caused by the operations on the site.

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 1 of 3):

Ref. N ^o or Code	Material/ Substance ⁽¹⁾	CAS Number	Danger ⁽²⁾ Category	Amount Stored (kg)	Annual Usage (kg)	Nature of Use	Organic/ Inorganic	R ⁽³⁾ - Phrase	S ⁽³⁾ - Phrase	Seveso Yes/No
A001	Acetic Acid	64-19-7	Corrosive	42244	105610	Production	Organic	R10, R35	S1/2, 23, 26, 45	No
A002	Acetic Anhydride	108-24-7	Corrosive	<10000	<10000	Production	Organic	R10-35	S1/2, 26, 45	No
A003	Acetone	67-64-1	Highly Flammable, Irritant	300,000 l	1121,224 l	Laboratory / Cleaning / Production	Organic	R 11	S2, 9, 16, 23, 33	Yes
A004	Acetonitrile	75-05-8	Toxic, Highly Flammable	150,000 l	263,123 l	Laboratory / Production	Organic	R11-23/24/25	S1/2/16/27/46	Yes
A005	Acetoxycetyl Chloride	13831-31-7	Corrosive	<1000	<1000	Production	Organic	R34, 36/37	S23, 26, 36/37/39	No
A006	Acetylene	74-86-2	Highly Flammable	2 cyl	30 cyl	Laboratory	Organic	N/A	S38, 36	Yes
A007	n-Acetylimidazole (98%)	2466-76-4	Harmful, Irritant	<1000	<1000	Production	Organic	N/A	N/A	No
A008	Activated Carbon	7440-44-0	Not classified	2000	2000	Carbon bed	Inorganic	N/A	N/A	No
A009	ACHNP.TEA	Not available	Not classified	<1000	<1000	Production	Organic	N/A	N/A	No
A010	Adenosine Deaminase Enzyme	9026-93-1	Not available	3409	8523	Production	Organic	N/A	N/A	No
A011	Alcohol SD3A	64-17-5	Harmful, Highly Flammable	300 l	695 l	Production	Organic	R11, 20/22	S1/2, 7, 16, 24, 45	Yes
A012	Aluminium Chloride	7466-70-0	Corrosive	10,000	34,071	Production / WWTP	Inorganic	R34	S7/8-28	No
A013	(1R,2S)-(-)-2-amino-1,2-diphenylethanol	23190-16-1	Irritant	2039	5097	Production	Organic	R 36/37/38	S26, 37/39	No
A014	Ammonia Solution, Ammonium Hydroxide 30%	1336-21-6	Corrosive	29,000	350450	Laboratory, Incinerator, WWTP	Inorganic	R34-36/37/38	S7-26	No
A015	Ammonium Acetate	631-61-8	Irritant	<10	<50	Laboratory	Inorganic	R36/37/38	S26, 36	No
A016	Ammonium Dihydrogen Phosphate	7722-76-1	Irritant	<10	<50	Laboratory	Inorganic	36/37/38	S26, 36	No
A017	Argon	7440-37-1	Not classified	6 cyl	90 cyl.	Laboratory / Maintenance	Inorganic	N/A	S38/9	No
A018	Azodiisobutyronitrile (AIBN)	78-67-1	Highly Flammable, Toxic	292	730	Production	Organic	R2, 11 20/22,	S3/7, 15, 39, 41, 47.	Yes
A019	3-Aminomethylallizarin-N,N-Diacetic acid	3952-78-1	Not classified	2	3	Laboratory	Organic	N/A	N/A	No
A020	Ammonium Ferric Sulphate	7783-83-7	Not classified	2	3	Laboratory	Inorganic	N/A	N/A	No
A021	di-Ammonium Hydrogen Phosphate	7722-76-1	Irritant	2	3	Laboratory	Inorganic	R 36/37/38	S 26, 36	No

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A022	Ammonium Oxalate	6009-70-7	Corrosive	2	3	Laboratory	Organic	R21/22	S24/25	No
A023	Ammonium Persulphate	7727-54-0	Not classified	2	3	Laboratory	Inorganic	N/A	N/A	No
A024	Ammonium Sulphate	7783-20-2	Not classified	2	3	Laboratory	Inorganic	N/A	N/A	No
A025	p-Anisidine	104-94-9	Not Classified	N/A	N/A	Production/Laboratory	Organic	N/A	N/A	N/A
B001	Benzene	71-43-2	Toxic, Highly Flammable	50,000 l	139,356 l	Production	Organic	R45-11-23/24/25-48-51-53	S53-16-29-44	Yes
B002	Benzoyl Chloride	98-88-4	Corrosive	<10000	<30000	Production	Organic	R34, (52)-53	S26	No
B003	Benzyl 2-bromoacetate	5437-45-6	Harmful	8315	20788	Production	Organic	R36/37/ 38	S3/9, S26	Yes
B004	BMS 181626	N/A	Not classified	<1000	<1000	Production	Organic	N/A	N/A	No
B005	BMS 182252-01	32981-86-5	Not classified	<1000	<1000	Production	Organic	N/A	S22	No
B006	BMS 182940	158894-67-8	Corrosive	3817	9543	Production	Organic	R10/34/41/43/52	S23/26/36/37/39/61	No
B007	BMS 182940 E solution (36.65% w/v)	N/A	Not classified	16501	41252	Production	Organic	N/A	N/A	No
B008	BMS 183040-01	133066-59-8	Not classified	<1000	<1000	Production	Organic	N/A	S39	No
B009	BMS 183981-01	132127-34-5	Irritant	<1000	<1000	Production	Organic	N/A	S36/37/39/38	No
B010	BMS 184163-01	Trade secret	Irritant	<1000	<1000	Production	Organic		S22, 24/25, 36/37/39, 38	No
B011	BMS 184260-01	Trade secret	Irritant	<1000	<1000	Production	Organic	R20/37	S22, 24/25, 36/37/39, 38	No
B012	BMS 184537-01	Trade secret	Irritant	<1000	<1000	Production	Organic	R2/5/20/37	S6, 14, 36/37/39, 38, 47	No
B013	BMS 186716	16730-00-2	Not Classified	7475	18688	Production	Organic	R43, 61	S22, 24/25, 36/37/39, 38, 45, 53	No
B014	BMS 187266-02	76932-17-7	Not classified	18231	45577	Production	Organic	N/A	N/A	No
B015	BMS 189921-01	160135-92-2	Not classified	17642	44105	Production	Organic	N/A	N/A	No
B016	BMS190313-01	N/A	Harmful	200	602	Production	Organic	R22	S22, 24/25, 36/37/39, 38, 45	No
B017	BMS 195829	N/A	Not classified	7942	19856	Production	Organic	N/A	N/A	No
B018	BMS 196099	255387-42-9	Harmful, Irritant	6237	15592	Production	Organic	R22,41,43	S24/25/36/37/39/45	No

Bristol-Myers Squibb Cruisera, Dublin
IPPC Licence Review Application

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 1 of 3):

Ref. N ^o or Code	Material/ Substance ⁽¹⁾	CAS Number	Danger ⁽²⁾ Category	Amount Stored (kg)	Annual Usage (kg)	Nature of Use	Organic/ Inorganic	R ⁽³⁾ - Phrase	S ⁽³⁾ - Phrase	Seveso Yes/No
B019	BMS 200475	N/A	Not classified	<1000	<1000	Production	Organic		N/A	No
B020	BMS 204352-01	N/A	Irritant	<1000	<1000	Production	Organic	R43	S22, 24/25, 36/37/39, 38, 45	No
B021	BMS 205786	215054-80-1	Not classified	6441	16101	Production	Organic	N/A	N/A	No
B022	BMS 207771-01	N/A	Not Classified	300	894	Production	Organic	N/A	S22/24/25/36/37/3 9/38/45	No
B023	BMS 207873	255387-46-3	Irritant	11105	27762	Production	Organic	R43	S22, 24/25, 36/37/39, 38, 45	No
B024	BMS 208112	N/A	Not Classified	150	391	Production	Organic	N/A	N/A	No
B025	BMS 208143	105996-54-1	Corrosive	6545	16362	Production	Organic	R41/43/52/53	S24/26/37/39/61	No
B026	BMS 208778-01	N/A	Not classified	300	1150	Production	Organic	N/A	N/A	No
B027	BMS 214662	N/A	Irritant	<1000	<1000	Production	Organic	R21/36/37	S22/24/25/36/37/3 8/39/45	No
B028	BMS 214702-01	162537-11-3	Not classified	2447	6117	Production	Organic	N/A	N/A	No
B029	BMS 217787-01	N/A	Not Classified	<1000	<1000	Production	Organic	N/A	N/A	No
B030	BMS 217947-01	N/A	Not classified	2025	5063	Production	Organic	N/A	N/A	No
B031	BMS 230193	N/A	Not Classified	<1000	<1000	Production	Organic	N/A	N/A	No
B032	BMS 231262	N/A	Not Classified	<1000	<1000	Production	Organic	N/A	N/A	No
B033	BMS 232387-01	255387-51-0	Not Classified	<1000	<1000	Production	Organic	N/A	S22/24/25/36/37/3 9/38/45	No
B034	BMS 232623-01	N/A	Not classified	<1000	<1000	Production	Organic	N/A	N/A	No
B035	BMS 232632-01	N/A	Not classified	4458	11146	Production	Organic	N/A	N/A	No
B036	BMS 232632-05	N/A	Not classified	3612	9031	Production	Organic	R41	S22/24/25/26/36/3 7/39/38/45	No
B037	BMS 233101-01	N/A	Not classified	3162	7905	Production	Organic			No
B038	BMS 233110-01	N/A	Not classified	2095	5238	Production	Organic			No
B039	BMS 232471-01	N/A	Not Classified	<1000	<1000	Production	Organic	N/A	N/A	No
B040	BMS 232484-01	N/A	Not Classified	<1000	<1000	Production	Organic	N/A	N/A	No
B041	BMS 233470-01	N/A	Not Classified	<1000	<1000	Production	Organic	N/A	N/A	No
B042	BMS 233471-01	N/A	Not Classified	<1000	<1000	Production	Organic	N/A	N/A	No
B043	BMS 239089-01	N/A	Not Classified	<1000	<1000	Production	Organic	N/A	N/A	No
B044	BMS 251736-01	N/A	Not Classified	<1000	<1000	Production	Organic	N/A	N/A	No
B045	BMS 265688-02	N/A	Not classified	22167	55416	Production	Organic	N/A	N/A	No
B046	BMS 275291-01	Mixture	Not classified	2519	6296	Production	Organic	N/A	N/A	No

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 1 of 3):

Ref. N ^o or Code	Material/ Substance ⁽¹⁾	CAS Number	Danger ⁽²⁾ Category	Amount Stored (kg)	Annual Usage (kg)	Nature of Use	Organic/ Inorganic	R ⁽³⁾ - Phrase	S ⁽³⁾ - Phrase	Seveso Yes/No
B047	BMS 281643-01	N/A	Not Classified	20323	50809	Production	Organic	N/A	N/A	No
B048	BMS 285392-01	N/A	Not Classified	<1000	<1000	Production	Organic	N/A	N/A	No
B049	BMS 291129-01	N/A	Not classified	3803	9508	Production	Organic	N/A	N/A	No
B050	BMS 291130-01	N/A	Not classified	<1000	<1000	Production	Organic	N/A	N/A	No
B051	BMS 291132-01	N/A	Not Classified	<1000	<1000	Production	Organic	N/A	N/A	No
B052	BMS 309901-01	N/A	Not Classified	2891	7229	Production	Organic	N/A	N/A	No
B053	BMS 310706-01/03	N/A	Not Classified	<1000	<1000	Production	Organic	N/A	N/A	No
B054	BMS 360254-01	N/A	Not Classified	<1000	<1000	Production	Organic	N/A	N/A	No
B055	BMS-394154-01	N/A	Not Classified	N/A	N/A	Production	Organic	Not classified acc. to EU reg's	S22, 24/25, 36/37/39, 38, 45	Yes
B056	BMS-477118-11	361442-04-8	Harmful	N/A	N/A	Production	Organic	R22, 43, 48/22, 52, 62, 63	S22, 36/37/39, 38, 45, 53, 61	Yes
B057	BMS-482204-03	N/A	Not Classified	N/A	N/A	Production	Organic	Not classified acc. to EU reg's	S22, 24/25, 36/37/39, 38, 45	Yes
B058	BMS-505112	N/A	Not fully tested	N/A	N/A	Production	Organic	Not fully tested	S22, 24/25, 38, 45, 36/37/39	Yes
B059	BMS 512148-05	N/A	Harmful, Irritant	N/A	N/A	Production	Organic	R22, 41, 48	S22, 24/25, 36/37/39, 38, 45	Yes
B060	BMS-528233-01	N/A	Not fully tested	N/A	N/A	Production	Organic	Not fully tested	S22, 24/25, 36/37/39, 38, 45	Yes
B061	BMS-528235-01	N/A	Not fully tested	N/A	N/A	Production	Organic	Not fully tested	S22, 24/25, 36/37/39, 38, 45	Yes
B062	BMS-540215-01	N/A	Harmful	N/A	N/A	Production	Organic	R63	S22, 24/25, 36/37/39, 38, 45	Yes
B063	BMS-562247-01	N/A	Not fully tested	N/A	N/A	Production	Organic	Not fully tested	S22, S36/37/39, S38, S45	Yes
B064	BMS-582664-02	N/A	Toxic, Harmful	N/A	N/A	Production	Organic	R22, 61	S22, 24/25, 36/37/39, 38, 45, 53, 60, 57	Yes
	BMS-587172	N/A	Not fully tested	N/A	N/A	Production	Organic	Not fully tested	S22, 38, 45	Yes
B065	BMS-587319-03	N/A	Not fully tested	N/A	N/A	Production	Organic	Not fully	S22, 36/37/39, 38,	Yes

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 1 of 3):

Ref. N ^o or Code	Material/ Substance ⁽¹⁾	CAS Number	Danger ⁽²⁾ Category	Amount Stored (kg)	Annual Usage (kg)	Nature of Use	Organic/ Inorganic	R ⁽³⁾ - Phrase	S ⁽³⁾ - Phrase	Seveso Yes/No
B066	BMS-589149	N/A	Harmful	N/A	N/A	Production	Organic	R22, 43, 68	S22, 24/25, 36/37/39, 38, 45, 60	Yes
B067	BMS-589151-01	N/A	Not fully tested	N/A	N/A	Production	Organic	Not fully tested	S22, 24/25, 36/37/39, 38, 45	Yes
B068	BMS-589152-01	N/A	Not fully tested	N/A	N/A	Production	Organic	Not fully tested	S22, 24/25, 36/37/39, 38, 45	Yes
B069	BMS-589154-01	N/A	Not fully tested	N/A	N/A	Production	Organic	Not fully tested	S22, 24/25, 36/37/39, 38, 45	Yes
B070	BMS-639694	872206-47-8	Irritant	N/A	N/A	Production	Organic	R43	S24, 36/37/39, 22, 38, 45	Yes
B071	BMS-645402-01	N/A	Harmful	N/A	N/A	Production	Organic	R63	S22, 24/25, 36/37/39, 38, 45	Yes
B072	BMS-647708-01	N/A	Not fully tested	N/A	N/A	Production	Organic	Not fully tested	S22, 24/25, 36/37/39, 38, 45	Yes
B073	BMV 41936	77421-68-2	Not classified	<1000	<1000	Production	Organic	N/A	S22, 24/25, 36/37/39, 38, 45	No
B074	3-Bromo-5-nitro salicylaldehyde	16634-88-1	Irritant	<1000	<1000	Production	Organic	R 36/37/38	S 26, 36	No
B075	Buspar Base (IV) (Hydrochloride)	33386-08-2	Not classified	2500	6000	Production	Organic	S23/24/25/36/37/38	S45/26/36/37/39/22	No
B076	Buspar I	20980-22-7	N/A	1263	3158	Production	Organic	S36/37/38	S26-36	No
B077	Buspar II	81461-73-6	N/A	2185	5462	Production	Organic	N/A	N/A	No
B078	Buspar III	1075-89-4	N/A	1224	3060	Production	Organic	R22/25	S36/37/39/45/60	No
B079	Butane	106-97-8	Highly Flammable, irritant	3 cylinders	40 cylinders	Laboratory	Organic	R12	S9,16	Yes
B080	Butanol	71-36-3	Harmful, Flammable	300,000 l	30901 l	Laboratory	Organic	R10/20	S16	Yes
B081	n - Butyl Acetate	123-86-4	Flammable, Irritant	300,000 l	608534 l	Production	Organic	R10	S2	Yes
B082	Butylated Hydroxy Toluene (BHT)	128-37-0	Harmful	<1000 l	<1000 l	Production	Organic	R20/21/22, 36/37/38, 41, 45	S26, 22, 7, 37/29	No
B083	Butyne diol	110-65-6	Not fully tested	Not Known	Not Known	Production	Organic	Not fully tested	S22, 24/25, 36/37/39, 38, 45	Yes
B084	Benzoic acid	N/A	N/A	2 l	4 l	Laboratory	Organic	N/A	N/A	No
B085	Blue Tetrazolium	1871-22-3	Not classified	2	4	Laboratory	Organic	N/A	S 24/25	No

Bristol-Myers Squibb Cruiserath, Dublin
IPPC Licence Review Application

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 1 of 3):

Ref. N ^o or Code	Material/ Substance ⁽¹⁾	CAS Number	Danger ⁽²⁾ Category	Amount Stored (kg)	Annual Usage (kg)	Nature of Use	Organic/ Inorganic	R ⁽³⁾ - Phrase	S ⁽³⁾ - Phrase	Seveso Yes/No
B086	Boric acid	10043-35-3	Harmful	2	4	Laboratory	Inorganic	R63, 62, 36/37/38	S45, 26, 36/37/39, 22	No
B087	Bromoacetic Acid	79-08-3	Toxic	21	31	Laboratory	Organic	R23/24/25, 35	S36/37/39, 45	Yes
B088	Bromophenol blue	115-39-9	Not available	3	7	Laboratory	Organic	N/A	N/A	No
C001	Calcium Ammonium Nitrate	N/A	Not classified	<2000	<10000	WWTP	Inorganic	N/A	N/A	No
C002	Calcium Hydroxide	1305-62-0	Corrosive	2000	18615	WWTP	Inorganic	R34	S45	No
C003	(1R)-10-Camphorsulfonic Acid (CSA)	35963-20-3	Corrosive	<1000	<1000	Production	Organic	R 34	S 26, 27, 36/37/39	No
C004	Carbobenzyloxy-L-alanine	1142-20-7	N/A	Not Known	Not Known	Production	Organic	N/A	S22, 24/25	
C005	Chlorine dioxide	10049-04-4	Oxidising	<10000	<10000	Production	Organic	N/A	N/A	No
C006	Chloroform	67-66-3	Toxic	10	<50	Laboratory	Organic	R22, 38, 40, 48/20/22	S36/37	Yes
C007	1-3-Chlorophenyl Piperazine HCl	65369-76-8	Irritant	5625	14062	Production	Organic	R36/37/38	S26, 36	No
C008	Chlorotrimethylsilane	75-77-4	Corrosive, Highly Flammable	6050	15124	Production	Organic	R34, 21, 14	S16, 23, 45, 26	Yes
C009	5-Chlorovaleryl chloride	1575-61-7	Corrosive	N/A	N/A	Production/Laboratory	N/A	R22, 34	S26, 36/37/39, 45	Yes
C010	CIP 100 (or equivalent)	N/A	Corrosive	<10000	<10000	Cleaning	Inorganic	N/A	N/A	No
C011	CIP 500 (or equivalent)	N/A	Corrosive	<10000	<10000	Cleaning	Inorganic	N/A	N/A	No
C012	Cyclohexane	110-82-7	Highly Flammable, Harmful	10	<50	Laboratory	Organic	R11	S9, 16, 33	Yes
C013	Carbon Tetrachloride	56-23-5	Toxic	21	31	Laboratory	Organic	R23/24/25, 40, 48/23, 52/53, 59	S23, 36/37, 45, 59, 61	Yes
C014	Celite 545	None	Not classified	2	3	Laboratory	Inorganic	R40, 20	S 22	No

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 1 of 3):

Ref. N° or Code	Material/ Substance ⁽¹⁾	CAS Number	Danger ⁽²⁾ Category	Amount Stored (kg)	Annual Usage (kg)	Nature of Use	Organic/ Inorganic	R ⁽³⁾ - Phrase	S ⁽³⁾ - Phrase	Seveso Yes/No
C015	3-Chloroaniline	108-42-9	Toxic, Corrosive, Dangerous to Environment	21	31	Laboratory	Organic	R33, 34, 24/25, 50/53	S36/37, 45, 60, 28A, 61	Yes
C016	B-Cyclodextrin	7585-39-9	Not classified	4	6	Laboratory	Organic	N/A	N/A	No
D001	D4T.FP	3056-17-5	Not classified	2055	5138	Production	Organic	N/A	N/A	No
D002	D4T.NMPO	N/A	Not classified	3670	9176	Production	Inorganic	N/A	N/A	No
D003	D4T I	56822-33-4	Not classified	<10000	<30000	Production	Inorganic	N/A	N/A	No
D004	D4T.II	38313-48-3	Dangerous to Environment	3058	7646	Production	Inorganic	R52/53	S61/36/37/39	Yes
D005	Darco G-60	64635-11-3	Irritant	888	2220	Production	Inorganic	N/A	N/A	No
D006	1,4-Diazabicyclo(2,2,2)octane (DABCO)	280-57-9	Highly flammable, Harmful	Not Known	Not Known	Production	Organic	R11, 22, 36/37/38, 52/53	S26, 60	No
D007	1,4-Dibromobutane	110-52-1	Irritant	2149	5372	Production	Organic	R 36/37/38	S26, 37/39	No
D008	1,3-Dibromo-5,5-dimethylhydantoin	77-48-5	Oxidiser, Harmful	10000	<30000	Production	Organic	R8, 20/21/22	S17, 26, 36/37/39	No
D009	Didanosine	69655-05-6		2400	6000	Production	Organic			No
D010	Diethyl Ether	60-29-7	Highly Flammable, Harmful	10	<50	Laboratory	Organic	R12/19	S9/16/29/33	Yes
D011	Diisopropylazodicarboxylate (DIAD)	2446-83-5	Harmful	6242	15604	Production	Organic	R40, 33, 20/21/22, 36/37/38	S 45, 26	No
D012	N,N-Diisopropylethylamine	7087-68-5	Highly Flammable, Corrosive	<1000	<1000	Production	Organic	R11, 20/21/22, 34	S16, 26, 36/37/39, 23	Yes
D013	Dimethylacetamide (DMA)	127-19-5	Harmful	10	<50	Laboratory	Organic	R20/21, 36	S26, 28, 36	No
D014	1-Dimethylaminododecane	112-18-5	Corrosive	2705	6762	Production	Organic	R 34	S 28, 27, 36/37/39	No
D015	3-Dimethylaminopropyl amine (DAPA)	6711-48-4	Flammable, Corrosive	11591	28961	Production	Organic	R 23/24/25, 34	S45, 26, 28, 27, 36/37/39	Yes
D016	4-Dimethylaminopyridine (DMAP)	1122-58-3	Very toxic	<1000	<1000	Production	Organic	R27, 25, 34	S22, 26, 27, 36/37/39	Yes
D017	N,N-Dimethylformamide (DMF)	68-12-2	Toxic	<1000	<1000	Production	Organic	R20/21, 36, 61	S45-53	Yes
D018	1,4-Dimethylpiperazine	106-58-1	Flammable, corrosive	2086	5216	Production	Organic	R34	S16, 26, 27, 36/37/39	Yes

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 1 of 3):

Ref. N ^o or Code	Material/ Substance ⁽¹⁾	CAS Number	Danger ⁽²⁾ Category	Amount Stored	Annual Usage	Nature of Use	Organic/ Inorganic	R ⁽³⁾ - Phrase	S ⁽³⁾ - Phrase	Seveso Yes/No
				(kg)	(kg)					
D019	Dimethylsulfite	616-42-2	Flammable, Irritant	4108	10270	Production	Organic	R36/37/ 38	S16, 26, 36/37/39	No
D020	Dimethyl Sulfoxide	67-68-5	Irritant	<10000	<30000	Production	Organic	R36/37/38	S26, 36, 23	No
D021	Dithiothreitol	27565-41-9	Irritant	2092	5230	Production	Organic	R36/37/38	S26, 36	No
D022	Deionised Water	N/A	Not classified	25,000 l	3013,122 l	General	Organic	N/A	N/A	No
D023	5,5-Dithiobis-(2-Nitrobenzoic acid)	69-78-3	Irritant	3	5	Laboratory	Organic	R36/37/38	S26, 36	No
E001	Ethanol	64-17-5	Highly Flammable, Irritant	100,000 l	200,000 l	Laboratory/Producti on	Organic	R11	S7, 16	Yes
E002	Ethanolamine	141-43-5	Corrosive	14889 l	37222 l	Production	Organic	R20, 36/37/38	S26, 36	No
E003	Ethyl Acetate	141-78-6	Highly Flammable, Irritant	300,000 l	505,866 l	Laboratory / Production	Organic	R11	S16, 23, 29, 33	Yes
E004	Ethyl Benzene	100-41-4	Flammable, Irritant	<5000	<10000	Production	Organic	R11, 20	S16,24/25,29	Yes
E005	N-Ethyl N'-dimethylaminopropyl Carbodiimide (EDAC)	25952-53-8	Harmful	2592	6479	Production	Organic	R 20/21/22, 36/37/38	S 26, 36	No
E006	2-Ethyl Hexanoic Acid	149-57-5	Corrosive	40	101	Production	Organic	R20/21/ 22, 34	S 26/27, 36/37/39	No
E007	Epichlorohydrin	106-89-8	Very toxic	2	3	Laboratory	Organic	R45, 10, 43	S53, 45	Yes
E008	Ethylenediaminetetraacetic acid	139-33-3	Not classified	3	5	Laboratory	Organic	N/A	N/A	No
E009	Ethyl-2-chloro-acetoacetate	638-07-3	Toxic	Not Known	Not Known	Production	Organic	R25, 34	S26, 36, 45	Yes
E010	Ethyl nicotinate	614-18-6	Irritant	Not Known	Not Known	Production	Organic	R36/37/38	S26, 36	Yes
E011	2-Ethylpyridine	100-71-0	Flammable, Corrosive	2	3	Laboratory	Organic	R34	S16, 26, 36/37/39	Yes
E012	Energy	Refer to Section 19D – Energy review								
F001	N-Fluorobenzenesulfonamide	133745-75-2	Not classified	200	582	Production	Organic	N/A	N/A	No
F002	4-Fluoro-3-nitrobenzotrifluoride	367-86-2	Flammable, Irritant	<1000	<1000	Production	Organic	R36/37/38	S16, 26, 36/37/39	Yes
F003	Formamide	75-12-7	Toxic					R61	R53, 45	
F004	Formic acid	64-18-6	Corrosive	<10000	<30000	Production	Organic	R 35	S 23, 26, 45	No
F005	Ferric Chloride hexahydrate	10025-77-1	Corrosive	2	3	Laboratory	Inorganic	R34, 20/21/22	S26, 27, 36/37/39	No
F006	Flocculant	Not available	Not available	<1,000	<5,000	Incinerator WWTP	Inorganic	N/A	N/A	No
G001	2,3,4,6-T-O-A-D-Glucopyranosyl Isothiocyanate	14152-97-7	Harmful	2	4	Laboratory	Organic	R20/21/22, 36/37/38	S26, 36	No
H001	Helium	7440-59-7	Non-flammable gas	16 cylinders	200 cylinders	Laboratory / Production	Inorganic	N/A	S9/38	No

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 1 of 3):

Ref. N ^o or Code	Material/ Substance ⁽¹⁾	CAS Number	Danger ⁽²⁾ Category	Amount Stored	Annual Usage	Nature of Use	Organic/ Inorganic	R ⁽³⁾ - Phrase	S ⁽³⁾ - Phrase	Seveso Yes/No
				(kg)	(kg)					
H002	Heptanes	142-82-5	Highly Flammable, Harmful	300,000 l	1012671 l	Laboratory / Production	Organic	R11	S9-16-23-29-33	Yes
H003	Hexamethyldisilazane	999-97-3	Highly Flammable, Harmful	4715	11788	Production	Organic	R20/21/22, 36	S 26, 36	Yes
H004	n-Hexane	110-54-3	Highly Flammable	50 l	118 l	Laboratory	Organic	R11, 48/20	S9,16, 24/25, 29, 51	Yes
H005	Hydrobenzamide	92-29-5	Irritant	<1000	<1000	Production	Organic	R36/37/38	S26, 36	No
H006	Hydrochloric Acid	7647-01-0	Corrosive	50000 l	335511 l	Laboratory / WWTP / Cooling water / Production	Inorganic	R34,37	S26, 45	No
H007	Hydrogen	1333-74-0	Extremely Flammable	2000	5000	Production / Laboratory	Inorganic	R12	S9, 16, 33	Yes
H008	Hydrogen Chloride	7647-01-0	Corrosive	3098	7746	Production	Inorganic	R35-37	S7/9, 26, 45	Yes
H009	1-Hydroxybenzotriazole Hydrate (HOBT)	2592-95-2	None available	1928	4821	Production	Organic	R44	S15, S36	No
H010	Hyflo supercel	61790-53-2	Harmful	2597	6494	Production	Inorganic	R20, 36/37	S26, 36, 22	No
H011	Hypophosphorous Acid (50%)	6303-21-5	Corrosive	6672	16681	Production	Inorganic	R34	S26,36/37/39, 28, 27	No
H012	Hydroxylammonium Chloride	5470-11-1	Toxic	3	5.3	Laboratory	Organic	R25, 20/21, 34, 42/43, 48/22	S45, 26, 22, 24, 37, 61	Yes
I001	Imidazole	288-32-4	Corrosive	<10000	<30000	Production	Organic	R22, 34	S22, 26, 37/39, 45	No
I002	4-Imidazole carboxaldehyde	3034-50-2	Irritant	<1000	<1000	Production	Organic	R36/37/38	S26, 36	No
I003	Isobutylacetate	110-19-0	Flammable, Irritant	<10000	<30000	Production	Organic	R11	S16-23-29-33	Yes
I004	Isobutylchloroformate	543-27-1	Toxic, flammable	<500	<1000	Production	Organic	R23/24/25, 34	S16, 26, 45, 26/37/39	Yes
I005	Isobutyraldehyde	78-84-2	Harmful, Highly Flammable	9856	24641	Production	Organic	R20/21/ 22	S16, 3/7/9, 26, 36	Yes
I006	Isopropanol (2-Propanol)	67-63-0	Highly Flammable, Irritant	300,000 l	1531,877 l	Production	Organic	R11, R36	S7, S16, S26	Yes
I007	Isopropyl acetate	108-21-4	Flammable, Irritant	81,635	204,087	Production	Organic	R11	S16, 23, 29, 33	Yes
I008	ISCEON 404A	Mixture	Not classified	5000	250	Refrigerant	Organic	N/A	S24/25, 41	No
L001	Lanthanum Nitrate	10277-43-7	Oxidising, Irritant	2	4	Laboratory	Inorganic	R 8, 36/37/38	S17, 26, 36	No
L002	Light oil (back-up to natural gas)	68476-30-2	Flammable	50,000 l	0	Production	Organic	N/A	N/A	Yes

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 1 of 3):

Ref. N ^o or Code	Material/ Substance ⁽¹⁾	CAS Number	Danger ⁽²⁾ Category	Amount Stored	Annual Usage	Nature of Use	Organic/ Inorganic	R ⁽³⁾ - Phrase	S ⁽³⁾ - Phrase	Seveso Yes/No
				(kg)	(kg)					
L003	Lipase Enzyme	9001-62-1	Not classified	2570	6425	Production	Organic	N/A	N/A	No
L004	Lithium Hexamethyldisilazide in THF (LHMDS)	4039-32-1	Corrosive, Highly Flammable	<10000	<10000	Production	Organic	R14, 34	S16, 26, 36/37/39, 27	Yes
L005	Lithium hydroxide monohydrate	1310-66-3	Toxic	<1000	<5000	Production	Inorganic	R61, 23, 34, 64	S45, 26, 27, 36/37/39	Yes
M001	Methanesulfonic Acid	75-75-2	Toxic	5182 l	12954 l	Production	Organic	R34	S26, 36, 45	Yes
M002	Methanol	67-56-1	Toxic, Highly Flammable	300,000 l	1161,156 l	Production / Laboratory/ Cleaning	Organic	R11-23/25	S7-16-24-45	Yes
M003	Methoxylamine Hydrochloride	593-56-6	Corrosive	500	1000	Production	Organic	R 34, 40	S 26, 22, 36	No
M004	Methoxyphenyl acetic acid	1798-09-0	Irritant	150	49 l	Production	Organic	R36/37/38	S26, 36	No
M005	2-Methoxy-propene	116-11-0	Harmful, Extremely Flammable	<10000	<10000	Production	Organic	R22	S16, 33, 36/37/39, 52	Yes
M006	Methylamine Solution (40%)	74-89-5	Extremely Flammable, Corrosive	1000 l	5000 l	Production	Organic	R11, 20/22, 34, 37	S16, 26, 29, 36/39(S2)	Yes
M007	(s)-a-Methyl benzylamine	2627-86-3	Corrosive	100 l	167	Production	Organic	R34, 20/21/22	S26, 27, 36/37/39	No
M008	Methylene Chloride	75-09-2	Harmful	300,000 l	1560146 l	Production	Organic	R40	S23, 24/25, 36/37	No
M009	Methyl ethyl ketone	78-93-3	Highly Flammable, Irritant	5 l	7.5 l	Laboratory	Organic	R11, 36/37	S9, 16, 25, 33	Yes
M010	Methyl isobutyl ketone	108-10-1	Highly Flammable, Harmful	300,000 l	455956 l	Production / Laboratory	Organic	R11	S9-16-23-33	Yes
M011	N-methylmorpholine	109-02-4	Flammable, Corrosive	1825	4563	Production	Organic	R34, 20/21/22	S16, 26, 36/37/39, 3/7/9	Yes
M012	1-methyl-2-pyrrolidinone	872-50-4	Harmful	881 l	22026	Production	Organic	R36/38, 40	S41	No
M013	Methyl-tert-butyl Ether	1634-04-4	Flammable	300,000 l	910,564 l	Production	Organic	R36/37/38, 40	S16, 26, 36	Yes
M014	MJ 13701	52605-52-4	Not classified	6750	16875	Production	Organic	N/A	N/A	No
M015	Monoethylene Glycol	107-21-1	Harmful	40,000 l	20,000 l	Chillers	Organic	R20/21/22, 36/37/38	S26,36/37/39,45	No
M016	3-Mercaptopropionic acid	107-96-0	Toxic	2	3	Laboratory	Organic	R23/24/25, 34, 45	S26, 27, 36/37/39	Yes
M017	Mercury (II) Acetate	1600-27-7	Very toxic	2	4	Laboratory	Organic	R26/27/28, 34, 43, 33	S45,26, 36/37/39	Yes
M018	Mercury (II) Chloride	7487-94-7	Very toxic	2	4	Laboratory	Inorganic	R28, 34,	S36/37/39, 45	Yes

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 1 of 3):

Ref. N ^o or Code	Material/ Substance ⁽¹⁾	CAS Number	Danger ⁽²⁾ Category	Amount Stored (kg)	Annual Usage (kg)	Nature of Use	Organic/ Inorganic	R ⁽³⁾ - Phrase	S ⁽³⁾ - Phrase	Seveso Yes/No
								48/24/25		
M019	Methylacetoacetate	105-45-3	Irritant	2 l	4 l	Laboratory	Organic	R36/37/38, 36	S 26, 36	No
M020	2-Methyl-1-propanol (Isobutyl alcohol)	78-83-1	Harmful, Flammable	4 l	7 l	Laboratory	Organic	R10, 20	S16	Yes
M021	2-Methylpropan-2-ol (Tert butyl alcohol)	75-65-0	Not classified	2 l	3 l	Laboratory	Organic	N/A	N/A	No
M022	Molecular Sieve 3A	None	Irritant	2	3	Laboratory	Inorganic	N/A	N/A	No
N001	Natural Gas	Mixture	Flammable gas	N/A	1839600 0Nm ³	Utilities	Organic	N/A	N/A	Yes
N002	Nefazodone HCl Crude	82752-99-6	Harmful, Irritant	10,000	25,000	Production	Organic	R22/48/41/51	S25/26/39/61	No
N003	Nefazodone HCl FP	82752-99-6	Harmful, Irritant	10,000	25,000	Production	Organic	R22/48/41/51	S25/26/39/61	No
N004	Nefazodone II	95885-13-5	Harmful	5000	12500	Production	Organic	R22/52/53	S22	No
N005	Nitric Acid	7697-37-2	Oxidising, toxic	10	450	Laboratory	Inorganic	R34	S23, 26, 36, 45	Yes
N006	Nitrogen	7727-37-9	Non flammable gas	60,000 cylinders	3650,000	Production / Laboratory	Inorganic	N/A	S38/9	No
N007	Nitrous oxide	10024-97-2	Oxidiser	2 cylinders	30 cylinders	Laboratory	Inorganic	R8, 20/21/22, 40	S45, 38, 36/37/39	Yes
N008	1-Naphthol	90-15-3	Not classified	2	3	Laboratory	Organic	N/A	N/A	No
N009	Nihydrin TLC Spray	N/A	Not classified	2	4	Laboratory	Organic	N/A	N/A	No
N010	Nitromethane	75-52-5	Flammable, Harmful	3 l	5 l	Laboratory	Organic	R5, 10, 22	S 41	Yes
O001	Octadecylamine	124-30-1	Corrosive	2000	1400	Boiler water treatment	Organic	R34, 20/21/22	S 26, 27, 36/37/39	No
O002	Octadecylamine acetate	2190-04-7	Not classified	2000	1400	Boiler water treatment	Organic	N/A	N/A	No
O003	Optisperse PO5068 (or equivalent)	Mixture	Not classified	50	350	Boiler water treatment	Inorganic	N/A	N/A	No
O004	Oxygen	7782-44-7	Oxidiser	8 cylinders	100 cylinders	Laboratory	Inorganic	R8	S17	Yes
O005	d-2-Octanol	6169-06-8	Harmful	4	6	Laboratory	Organic	R16, 36/37/38	S 24/25	No
P001	Palladium / Carbon (5%)	7440-05-3/ 7440-44-0	Flammable	246	615	Production	Inorganic	R17	S15, 37	Yes
P002	Palladium / Alumina (5%)									
P003	Peanut Oil	8002-03-7	Not classified	500 l	1000 l	Production	Organic	R36/37/38	S26/36	No

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 1 of 3):

Ref. N ^o or Code	Material/ Substance ⁽¹⁾	CAS Number	Danger ⁽²⁾ Category	Amount Stored (kg)	Annual Usage (kg)	Nature of Use	Organic/ Inorganic	R ⁽³⁾ - Phrase	S ⁽³⁾ - Phrase	Seveso Yes/No
P004	Pen V Amidase	N/A	Not classified	<10000	<10000	Production	N/A	N/A	N/A	No
P005	Perchloric Acid	7601-90-3	Oxidising, Corrosive	<10000	<10000	Production	Inorganic	R5, 8, 35	S23, 26, 36, 45	No
P006	Phosphoric Acid (85%)	7664-38-2	Corrosive	19715	49288	Production	Inorganic	R34	S26,45,1/2	No
P007	Pivaloyl Chloride	3282-30-2	Highly Flammable, Corrosive	917	2292	Production	Organic	R23/24/25, 34	S16, 36/37/39, 26, 3/7/9	Yes
P008	Platinum / Carbon (5%)	7440-06-4	Flammable	780	1951	Production	Inorganic	R11	S15, 37	Yes
P009	Polyelectrolyte	N/A	Not classified	250	17520	WWTP	Organic	N/A	N/A	No
P010	Potassium Bicarbonate	298-14-6	Irritant	33177	82943	Production	Inorganic	N/A	N/A	No
P011	Potassium Carbonate	584-08-7	Harmful	54715	136786	Production	Inorganic	R20/21/22	S26, 36	No
P012	Potassium Hydroxide	1310-58-3	Corrosive	4827	12669	Production / Laboratory	Inorganic	R 35	S 26, 37/39, 45	No
P013	Potassium Iodide	7681-11-0	Toxic	10	<50	Laboratory	Inorganic	R61, 42/43, 36/38	S45, 26, 36/37/39	Yes
P014	Potassium Phosphate, dibasic	7758-11-4	Irritant	7153	17883	Production / Laboratory	Inorganic	N/A	N/A	No
P015	Potassium Phosphate, monobasic	7778-77-0	Not classified	10	<50	Laboratory	Inorganic	N/A	N/A	No
P016	L-Proline	147-85-3	Not classified	5467	13666	Production	Organic	N/A	N/A	No
P017	Propionyl Bromide	598-22-1	Corrosive	18751	46878	Production	Organic	R14-34	S16, 26, 27 36/37/39	Yes
P018	Purified Water	N/A	Not classified	895524 l	2238810 l	Production	Organic	N/A	N/A	No
P019	Pyridine	110-86-1	Harmful, Highly Flammable	13	34	Laboratory / Production	Organic	R11-20/ 21/22	S26, 28	Yes
P020	Pyridinium p-Toluene Sulfonate	24057-28-1	Irritant	<1000	<1000	Production	Organic	R36/37/38	S26-37/39	No
P021	Palladium Chloride	7647-10-1	Irritant	4	7	Laboratory	Inorganic	R 36/37/38	S 26, 36	No
P022	Phenylacetaldehyde	122-78-1	Harmful	2 l	3 l	Laboratory	Organic	R22, 36/37/38, 43	S 26, 36	No
P023	Phosphorous oxychloride	10025-87-3								
P024	Phosphorus pentoxide	1314-56-3	Very toxic	9	12	Laboratory	Inorganic	R 35	S 22, 26, 45	No
P025	Picryl Chloride	Not available	Not available	2	3	Laboratory	N/A	N/A	N/A	No
P026	Potassium Bromide	7758-02-3	Harmful	3	4	Laboratory	Inorganic	R 22, 36/37/38	S 26, 36, 22	No
P027	Potassium Hydrogen Phthalate	877-24-7	Irritant	2	3	Laboratory	Inorganic	R 36/37/38	S 26, 36	No
P028	Potassium Iodate	7758-05-6	Oxidising, Toxic	2	4	Laboratory	Inorganic	R 8, 61, 42/43,	S 17, 45,	Yes

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 1 of 3):

Ref. N ^o or Code	Material/ Substance ⁽¹⁾	CAS Number	Danger ⁽²⁾ Category	Amount Stored (kg)	Annual Usage (kg)	Nature of Use	Organic/ Inorganic	R ⁽³⁾ - Phrase	S ⁽³⁾ - Phrase	Seveso Yes/No
P029	Potassium Sulphate	7778-80-5	Harmful	3	5	Laboratory	Inorganic	R22	S36	No
P030	Potassium dihydrogen phosphate	7778-77-0	Not classified	4	6	Laboratory	Inorganic	N/A	N/A	No
P031	Peracetic acid	Mixture	Not classified	400 l	1800 l	Reverse Osmosis units	Organic	N/A	N/A	No
P032	(s)-(+)-1,2-propanediol	4254-15-3	EU Regulatory data unavailable	Not known	Not Known	Production	N/A	EU Regulatory data unavailable	EU Regulatory data unavailable	
P033	Propylene oxide	75-56-9	Extremely flammable, toxic	Not known	Not Known	Production	N/A	R45, 46, 12, 20/21/22, 36/37/38		Yes
Q001	Quinaldine Red	117-92-0	Not classified	2	5	Laboratory	Organic	N/A	N/A	No
R001	Resazurin tablets	62758-13-8	Irritant	3	5	Laboratory	Organic	R 36/37/38	S 26, 36	No
S001	Sodium Acetate	127-09-3	Irritant	368	921	Laboratory	Inorganic	N/A	N/A	No
S002	Sodium Bicarbonate	144-55-8	Irritant	123	307	Production	Inorganic	N/A	N/A	No
S003	Sodium Bisulfate	10034-88-5	Corrosive	<1000	<1000	Production	Inorganic	R34	S26,27,36/37/39	No
S004	Sodium Bisulfite	7631-90-5	Irritant, Harmful	102,371	722,727	Boiler water treatment / Incinerator / Waste Heat Boiler / Production	Inorganic	R 22, 31, 36/38	S23, 26, 28, 36/37/39	No
S005	Sodium Borohydride	16940-66-2	Toxic	<500	<1000	Production	Inorganic	R 15, 23/24/25, 34	S 43, 7/8, 45, 36/37/39	Yes
S006	Sodium Bromate	7789-38-0	Oxidiser, Irritant	<1000	<1000	Production	Inorganic	R8, 36/37/38	S17, 26, 27, 36/37/39	Yes
S007	Sodium Carbonate	497-19-8	Harmful	4436	11091	Production	Inorganic	R 36	S22, 26	No
S008	Sodium Chloride	7647-14-5	Irritant	11004	27511	Production /Laboratory	Inorganic	R36/37/38	S26, 36	No
S009	Sodium Dithionite	7775-14-6	Highly Flammable	100	1370	Production	Inorganic	R 7, 22, 31	S 7/8, 26, 26, 28, 43	Yes
S010	Sodium Ethyl Hexanoate	None	Irritant	1267	3168	Production	Organic	R36/37/ 38	S 26, 36	No
S011	Sodium ethoxide	141-52-6	Highly flammable, corrosive					R11, 14, 34	S8, 16, 26, 43, 45	
S012	Sodium Hydroxide 30%	1310-73-2	Corrosive	50,000 l	1756800 620,863 l	Laboratory / Boiler water / WWTP /	Inorganic	R34	S26, 27, 36/37/39, 45	No

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 1 of 3):

Ref. N ^o or Code	Material/ Substance ⁽¹⁾	CAS Number	Danger ⁽²⁾ Category	Amount Stored	Annual Usage	Nature of Use	Organic/ Inorganic	R ⁽³⁾ - Phrase	S ⁽³⁾ - Phrase	Seveso Yes/No
	50%			(kg)	(kg)					
				10,000	1	50,000	1	Waste Heat Boiler / Production		
S013	Sodium Hypochlorite	7681-52-9	Oxidiser, Corrosive	8126	30,314	Production / Water treatment	Organic	R31, 34	S28, 45, 51, 50	No
S014	Sodium Metabisulfite	7681-57-4	Harmful	2066	5165	Production	Inorganic	R 20/21/22	S26, 36	No
S015	Sodium methoxide	124-41-4	Highly flammable, corrosive	Not known	Not Known	Production		R 11, 14, 34	S8, 16, 26, 43, 45	Yes
S016	Sodium Phosphate, monobasic	7558-80-7	Irritant	<1000	<5000	Production	Inorganic	R36/37/38	S26, 36	No
S017	SQ 02,072	485-71-2	Harmful	5817	14542	Production	Organic	R23/24/25	S45/36/37/39	No
S018	SQ14224	64838-55-7	Irritant	12167	30418	Production	Organic	N/A	N/A	No
S019	SQ14225	62571-86-2	Irritant, toxic	<1000	<5000	Production	Organic	R41, 61	S25, 36/37/39, 38, 53	Yes
S020	SQ 25670	76497-39-7	Toxic, Dangerous to environment	<1000	<5000	Production	Inorganic	R24/25, 36, 50	S36/37/39, 45, 57, 60	Yes
S021	SQ 26621	74345-73-6	Corrosive	8167	20418	Production	Organic	R14, 34	S24/25, 30, 36/37/39, 45	No
S022	SQ 27616	96314-26-0	Toxic	<1000	<1000	Production	Organic	R43, 48/25, 62	S24, 36/37	Yes
S023	SQ 28303	86552-32-1	Irritant	6585	16464	Production	Organic	R41	S26/39	No
S024	SQ 28355	87460-09-1	Irritant	9415	23538	Production	Organic	R38/41	S25/26/36/37/39	No
S025	SQ 28449	123599-82-6	Irritant, Harmful	8444	21110	Production	Inorganic	R36/38	S22/26/36	No
S026	SQ 28555	88889-14-9	Irritant	3744	9360	Production	Organic	R41, 43		No
S027	SQ 28646	90657-55-9	Irritant, Harmful	1658	4145	Production	Inorganic	R22/38/41/43/62	S22/26/36/37/39	No
S028	SQ 28796	123599-79-1	Irritant	5055	12638	Production	Organic	R41/43/52/53	S24/26/37	No
S029	SQ 29242	31560-20-2	Not classified	5224	13059	Production	Inorganic	N/A	N/A	No
S030	SQ 29517	103201-78-1	Not classified	241	602	Production	Inorganic	N/A	N/A	No
S031	SQ 31175	768-56-9	Irritant	4738	11845	Production	Organic	R 36/37/38	S 26, 36/37/39	No
S032	SQ 32034	120867-02-5	Not classified	5645	14112	Production	Organic	R 52/53	N/A	No
S033	SQ 32035	120851-71-0	Not classified	4234	10584	Production	Organic	N/A	S22/26	No
S034	SQ 35154	Not assigned	Not classified	<1000	<1000	Production	Organic	N/A	S22/24/25/36/37/39/38/45	No
S035	SR 47436 Crude	138402-11-6	Not classified	6667	166670	Production	Organic	N/A	S33, 36/37, 38	No
S036	SR 47436 Pure	138402-11-6	Not classified	6240	156001	Production	Organic	N/A	S33, 36/37, 38	No
S037	SR 47563	138401-24-6	Dangerous to	<100000	<100000	Production	Organic	R50-53	S22, 61	Yes

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 1 of 3):

Ref. N ^o or Code	Material/ Substance ⁽¹⁾	CAS Number	Danger ⁽²⁾ Category	Amount Stored (kg)	Annual Usage (kg)	Nature of Use	Organic/ Inorganic	R ⁽³⁾ - Phrase	S ⁽³⁾ - Phrase	Seveso Yes/No
			Environment							
S038	SR 47929	114772-53-1	Not classified	<10000	<10000	Production	Organic	N/A	N/A	No
S039	SR 48001A	151257-01-1	Harmful, Irritant	<10000	<10000	Production	Organic	R22, 36	S22, 26	No
S040	SR 48941	114772-54-2	Not classified	<10000	<10000	Production	Organic	N/A	N/A	No
S041	Sulfamic acid	5329-14-6	Irritant	Not known	Not Known	Production		R36/38, 52/53	S26/28, 61	No
S042	Sulphuric Acid	7664-93-9	Corrosive	5651	14128	Laboratory / Cooling water	Inorganic	R35	S 26, 30, 45	No
S043	Sulphuryl Chloride	7791-255	Highly toxic	150	490	Production	Inorganic	R14, 34, 37	S26, 45	Yes
S044	Syltherm XLT	None assigned	Not classified	75,000 l	53,000 l	Heat transfer fluid	Inorganic	N/A	N/A	Yes
S045	Selenium Powder black	7782-49-2	Toxic	3	4	Laboratory	Inorganic	R 23/25, 33	S20/21, 28, 44, 45, 28A	Yes
S046	Silver Nitrate	7761-88-8	Corrosive	4	6	Laboratory	Inorganic	R 34	S 1/2, 26, 45	No
S047	tri-Sodium Citrate	6132-04-3	Not classified	2	3	Laboratory	Organic	N/A	N/A	No
S048	Sodium dihydrogen phosphate	7558-80-7	Irritant	4	6	Laboratory	Organic	R 36/37/38	S 26, 36	No
S049	Sodium Methoxide	121-41-4	Highly Flammable, toxic	4 l	6 l	Laboratory	Organic	R 10, 14, 23/25, 34	S 16, 26, 36/37/39, 45	Yes
S050	Sodium Nitrite	7632-00-0	Oxidising	2	3	Laboratory	Inorganic	R 8, 25	S 45	Yes
S051	Sodium Nitroprusside	14402-89-2	Very toxic	2	3	Laboratory	Organic	R 26/27/28	S 45, 36/37/39, 22	Yes
S052	Sodium Phosphate, dibasic anhydrous	7558-79-4	Irritant	2	4	Laboratory	Inorganic	R 36/37/38	S 26, 36	No
S053	Sodium Persulphate	7775-27-1	Irritant, Oxidising	16	104	TOC analysers	Inorganic	R 22, 42/43, 8	S 17, 26, 8	Yes
T001	L-tartaric acid	87-69-4	Irritant	<1000	<1000	Production	Organic	R 36/37/38	S26, 36	No
T002	Tetrabutylammonium bromide	1634-19-2	Harmful	57	144	Production	Organic	R20/22, 36/37/38	S 26, 36	No
T003	Tetrahydrofuran	109-99-9	Highly Flammable, Harmful	300,000 l	400,000 l	Laboratory / Production	Organic	R11, 19, 36/37	S16/29/33	Yes
T004	Tetramethylethylenediamine	110-18-9	Highly Flammable, Corrosive	5330	13326	Production	Organic	R11, 20/22, 34	S16, 26, 36/37/39, 45	Yes
T005	Thiobenzoic acid	98-91-9	Irritant	1350	3374	Production	Organic	R 36/37/38	S26, 36	No
T006	2-Thiophenesulfonyl chloride	16629-19-9	Corrosive	<1000	<1000	Production	Organic	R34	S26, 28, 27, 36, 37, 39	No

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 1 of 3):

Ref. N ^o or Code	Material/ Substance ⁽¹⁾	CAS Number	Danger ⁽²⁾ Category	Amount Stored	Annual Usage	Nature of Use	Organic/ Inorganic	R ⁽³⁾ - Phrase	S ⁽³⁾ - Phrase	Seveso Yes/No
				(kg)	(kg)					
T007	Thionyl Chloride	7719-09-7	Corrosive	<10000	<10000	Production	Organic	R14, 34, 37	S 26, 45	Yes
T008	Toluene	108-88-3	Harmful, Highly Flammable	300,000 l	497048	Laboratory / Production	Organic	R11, 20	S16, 23, 29, 33	Yes
T009	Tributyl methyl ammonium chloride 75% in water	56375-79-2	Irritant	<1000	<1000	Production	Organic	R36	S 26, 37/39	No
T010	Tributylphosphine	998-40-3	Highly Flammable, Corrosive	2989	7472	Production	Organic	R17, 34, 20/21/22	S6, 16, 26 36/37/39	Yes
T011	Trichloroethane	79-00-5	Harmful	10	<50	Laboratory	Organic	R20/21/22	S9	Yes
T012	Triethylamine (TEA)	121-44-8	Highly Flammable, Corrosive	2327	5817	Production	Organic	R11, 36/37	S16-26-29	Yes
T013	Triethylorthoformate	122-51-0	Irritant	<1000	<1000	Production	Organic	R 36/37/38	S 16, 26, 36	No
T014	Triethylsilyl chloride	994-30-9	Flammable, Corrosive	<10000	<10000	Production	Organic	R34	S 3/7/9, 16, 26, 36/37/39	Yes
	Triethylsilane boron trifluoride acetic acid complex									
T015	Triethylzilone	N/A	Not classified	<1000	<1000	Production	Organic	N/A	N/A	No
T016	Trifluoroacetic Acid	76-05-1	Corrosive	<1000	<1000	Production	Organic	R20-35	S9-26-27-28-45	No
T017	Trifluoroacetic anhydride	407-25-0	Corrosive	<1000	<1000	Production	Organic	R34, 14, 20, 21, 22	S26, 27, 36, 37, 39, 23	No
T018	Trimethylene Chlorobromide	109-70-6	Harmful	5512	13781	Production	Organic	R 22, 36/37/38	S 26, 36	No
T019	Trimethyl orthoformate	149-73-5	Highly flammable, Irritant	N/A	N/A	Production	N/A	R 11, 36	R 9, 16, 26	Yes
T020	Triphenylphosphine	603-35-0	Harmful	6644	16609	Production	Organic	R 22	S 36	No
T021	n-Tetradecane	629-59-4	Irritant	2 l	3 l	Laboratory	Organic	R 36/37/38	S 26, 36	No
T022	Thiobarbituric acid	504-17-6	Corrosive	2	3	Laboratory	Organic	N/A	N/A	No
T023	Thymol blue	76-61-9	Not classified	7	10	Laboratory	Organic	N/A	N/A	No
T024	Tributylamine	102-82-9	Very Toxic	16 l	50 l	Laboratory	Organic	R26/27, 25, 34	S45, 27, 26, 36/37/39	Yes
T025	Trichloroacetyl chloride	76-02-8	Toxic	2 l	3 l	Laboratory	Organic	R 23/24/25, 34, 14	S 45, 26, 27, 36/37/39	Yes
T026	Tetrabutylammonium hydrogen sulphate	32503-27-8	Harmful	5	7	Laboratory	Organic	R 22, 36/37/38	S 26, 36	No
T027	Tetra-n-butylammonium Hydroxide	2052-49-5	Corrosive	20 l	29 l	Laboratory	Organic	R 34, 20/21/22	S7, 45, 26, 36/37/39	No

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 1 of 3):

Ref. N° or Code	Material/ Substance ⁽¹⁾	CAS Number	Danger ⁽²⁾ Category	Amount Stored (kg)	Annual Usage (kg)	Nature of Use	Organic/ Inorganic	R ⁽³⁾ - Phrase	S ⁽³⁾ - Phrase	Seveso Yes/No
U001	Urea	100	Not classified	3	5	Laboratory	Organic	N/A	N/A	No
V001	Vanadium Pentoxide	1314-62-1	Harmful	925	925	Incinerator	Inorganic	R 22, 36	S 26	No
V002	Vilsmeier Reagent	3724-43-4	Harmful	17031	42576	Production	Organic	R 20/21/22	S 36, 26, 27, 36/39	No
W001	Water	7732-18-5	Not classified	500,000 l	N/A	General	Inorganic	N/A	N/A	No
X001	Xylene	1330-20-7	Flammable	10573 l	26432 l	Production	Organic	R 60	S20/21, 53,45,36/37/39,41,37/38,16	Yes
Z001	Zero Air	1322510-0	Not classified	2 cylinders	30 cylinders	Laboratory	Organic	Not classified	Not classified	No
Z002	Zinc Dust	7440-66-6	Highly Flammable	73	184	Production	Inorganic	R15, 17	S7/8, 43	Yes
Z003	Zinc Bromide	7699-45-8	Irritant	26	65184	Production	Inorganic	R36/37/ 38	S26, 36	No

- Notes: 1. In cases where a material comprises a number of distinct and available dangerous substances, please give details for each component substance.
2. c.f. Article 2(2) of SI N° 77/94 3. c.f. Schedules 2 and 3 of SI N° 77/94

Notes: N/A indicates information is not available
Where the annual use and storage of a substance is indicated as a maximum figure, i.e., <10000, the figure has not yet been finalised.
All the quantities provided are estimated and will be subject to change in agreement with the production schedule.

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 2 of 3):

Ref. N ^o or Code	Material/ Substance ⁽²⁾	Ecological Aquatic				Toxicological				Radioactive Yes/No
		LC ₅₀ mg/l	Species	EC ₅₀ ⁽⁴⁾ mg/l	Species	Oral LD ₅₀ mg/kg	Species	IV LD ₅₀ mg/kg	Species	
A001	Acetic Acid	<88 / 96hr @18-22C	Fathead minnow	Not available		3310	Rat	525	Mse	No
A002	Acetic Anhydride	106122 / 24 hr	Fathead minnow Bluegills, Daphnia	Not available		1780	Rat	N/A		No
A003	Acetone	5540 / 96hr @12C >5500 / 96hr >10000 / 24hr	Rainbow trout Fish Daphnia	Not available		5800-9800 5300	Rat Rabbit	N/A		No
A004	Acetonitrile	1640 / 96hr @ 26.1C	Fathead minnow	1600-1690 96 hrs	Fathead Minnow	3800	Rat	N/A		No
A005	Acetoxycetyl Chloride	N/A		N/A		>1000	Mouse	N/A		No
A006	Acetylene	N/A		N/A		N/A		N/A		No
A007	n-Acetylimidazole (98%)	N/A		N/A		N/A		N/A		No
A008	Activated Carbon	N/A		N/A		N/A		N/A		No
A009	ACHNP.TEA	N/A		N/A		N/A		N/A		No
A010	Adenosine Deaminase Enzyme	N/A		N/A		N/A		N/A		No
A011	Alcohol SD3A	13000 / 96 hr @ 12 C	Rainbow trout	Not available		7090	Rat	1973 1440	Mouse Rat	No
A012	Aluminium Chloride	Not available		N/A		1130 300	Mouse Rat	N/A		No
A013	(1R,2S)-(-)-2-amino-1,2-diphenylethanol	Not available		Not available		Not available		N/A		No
A014	Ammonia Solution, 30% Ammonium Hydroxide	0.66 / 48hr 0.024-0.093 / 48hr	Daphnia Bluegill	N/A		350	Rat	91	Mouse	No
A015	Ammonium Acetate	Not available		N/A		Not available		98	Mouse	No
A016	Ammonium Dihydrogen Phosphate	Not available		N/A		Not available		N/A		No
A017	Argon	N/A		N/A		N/A		N/A		No
A018	Azodiisobutronitrile (AIBN)	580 / 96hr	Brachydanio rerio	N/A		100	Rat	N/A		No
A019	3-Aminomethylallizarin-N,N-Diacetic acid	N/A		N/A		N/A		N/A		No
A020	Ammonium Ferric Sulphate	N/A		N/A		N/A		N/A		No
A021	di-Ammonium Hydrogen	N/A		N/A		N/A		N/A		No

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 2 of 3):

Ref. N ^o or Code	Material/ Substance ⁽²⁾	Ecological Aquatic				Toxicological				Radioactive Yes/No
		LC ₅₀ mg/l	Species	EC ₅₀ ⁽⁴⁾ mg/l	Species	Oral LD ₅₀ mg/kg	Species	IV LD ₅₀ mg/kg	Species	
	Phosphate									
A022	Ammonium Oxalate	N/A		N/A		N/A		N/A		No
A023	Ammonium Persulphate	Not available		N/A		689	Rat	N/A		No
A024	Ammonium Sulphate	Not available		N/A		3000	Rat	N/A		No
A025	p-Anisidine									
B001	Benzene	20 / 24-48hr	Bluegill sunfish	N/A		930	Rat	N/A		No
B002	Benzoyl Chloride	35 / 96 hr	Fathead minnow	N/A		1900/2460	Rat	N/A		No
B003	Benzyl 2-bromoacetate	N/A		N/A		N/A		N/A		No
B004	BMS 181626	N/A		N/A		N/A		N/A		No
B005	BMS 182252-01	N/A		N/A		N/A		N/A		No
B006	BMS 182940	35.5/96 hr	Rainbow Trout	100/72 hr	Algae	>2000	Rat	N/A		No
B007	BMS 182940 E Solution (36.65%)	35.5/96 hr	Rainbow Trout	100/72 hr	Algae	>2000	Rat	N/A		No
B008	BMS 183040-01	N/A		N/A		>2000 >5000	Rat Mouse	N/A		No
B009	BMS 183981-01	N/A		N/A		2000	Rat	N/A		No
B010	BMS 184163-01	N/A		N/A		5000	Mouse	N/A		No
B011	BMS 184260-01	N/A		N/A		>5000	Mouse	N/A		No
B012	BMS 184537-01	N/A		N/A		5000	Mouse	N/A		No
B013	BMS 186716	N/A		N/A		>5000 >5000	Rat Mouse	N/A		No
B014	BMS 187266-02	70.4/96 hr	Rainbow Trout	>100/48 hr	Daphnia	>500	Rat	N/A		No
B015	BMS 189921-01	N/A		N/A		>2500	Mouse	N/A		No
B016	BMS 190313	N/A		N/A		2000	Rat	N/A		No
B017	BMS 195829	N/A		N/A		>2000	Rat	N/A		No
B018	BMS 196099	N/A		N/A		468	Rat	N/A		No
B019	BMS 200475	N/A		N/A		N/A		N/A		No
B020	BMS 204352-01	N/A		N/A		>600 >200	Mouse Rat	N/A		No
B021	BMS 205786	14214 ppm/24 hr	Fish	N/A		>2000	Rat	N/A		No
B022	BMS 207771-01	N/A		N/A		>2000	Rat	N/A		No
B023	BMS 207873	N/A		N/A		>2000	Rat	N/A		No

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 2 of 3):

Ref. N ^o or Code	Material/ Substance ⁽²⁾	Ecological Aquatic				Toxicological				Radioactive Yes/No
		LC ₅₀ mg/l	Species	EC ₅₀ ⁽⁴⁾ mg/l	Species	Oral LD ₅₀ mg/kg	Species	IV LD ₅₀ mg/kg	Species	
B024	BMS 208112	N/A		N/A		N/A		N/A		No
B025	BMS 208143	N/A		>116/48 hr	Daphnia	>2000	Rat	1563	Mouse	No
B026	BMS 208778	N/A		N/A		N/A		N/A		No
B027	BMS 214662	N/A		N/A		N/A		N/A		No
B028	BMS 214702-01	N/A		>100 / 24 & 48 hr	Daphnia	>2000	Rat	N/A		No
B029	BMS 217787-01	N/A		N/A		N/A		N/A		No
B030	BMS 217947-01	N/A		29/48 hr	Daphnia	300-500	Rat	N/A		No
B031	BMS 230193	N/A		N/A		>2000	Rat	N/A		No
B032	BMS 231262	N/A		N/A		N/A		N/A		No
B033	BMS 232387-01	N/A		N/A		N/A		N/A		No
B034	BMS 232623-01	N/A		N/A		N/A		N/A		No
B035	BMS 232632-01	N/A		N/A		N/A		N/A		No
B036	BMS 232632-05	N/A		N/A		N/A		N/A		No
B037	BMS 233101-01	N/A		N/A		>2000	Rat	N/A		No
B038	BMS 233110-01	30.3/48 hr	Daphnia	N/A		750	Rat	N/A		No
B039	BMS 232471-01	N/A		N/A		N/A		N/A		No
B040	BMS 232484-01	N/A		N/A		N/A		N/A		No
B041	BMS 233470-01	N/A		N/A		N/A		N/A		No
B042	BMS 233471-01	N/A		N/A		N/A		N/A		No
B043	BMS 239089-01	N/A		N/A		N/A		N/A		No
B044	BMS 251736-01	N/A		N/A		N/A		N/A		No
B045	BMS 265688-02	N/A		N/A		>2000	Rat	N/A		No
B046	BMS 275291-01	N/A		N/A		>800 mg/kg	Rat	N/A		No
B047	BMS 281643-01	N/A		N/A		N/A		N/A		No
B048	BMS 285392-01	N/A		N/A		N/A		N/A		No
B049	BMS 291129-01	N/A		N/A		N/A		N/A		No
B050	BMS 291130-01	N/A		N/A		N/A		N/A		No
B051	BMS 291132-01	N/A		N/A		N/A		N/A		No
B052	BMS 309901-01	N/A		N/A		N/A		N/A		No
B053	BMS 310706-01/03	N/A		N/A		N/A		N/A		No
B054	BMS 360254-01	N/A		N/A		N/A		N/A		No

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 2 of 3):

Ref. N ^o or Code	Material/ Substance ⁽²⁾	Ecological Aquatic				Toxicological				Radioactive Yes/No
		LC ₅₀ mg/l	Species	EC ₅₀ ⁽⁴⁾ mg/l	Species	Oral LD ₅₀ mg/kg	Species	IV LD ₅₀ mg/kg	Species	
B055	BMS-394154-01	N/A		N/A		N/A		N/A		
B056	BMS-477118-11	N/A		N/A		1500	Rat	N/A		
B057	BMS-482204-03	N/A		N/A		>2000	Rat	N/A		
B058	BMS-505112	N/A		N/A		N/A		N/A		
B059	BMS-512148-05	N/A		N/A		750-1500	Rat	N/A		
B060	BMS-528233-01	N/A		N/A		>2000	Rat	N/A		
B061	BMS-528235-01	N/A		N/A		>2000	Rat	N/A		
B062	BMS-540215-01	N/A		N/A		N/A		N/A		
B063	BMS-562247-01	N/A		N/A		>4510	Rat	N/A		
B064	BMS-582664-02	N/A		N/A		800-1500	Rat	N/A		
B065	BMS-587172	N/A		N/A		>2000	Rat	N/A		
B066	BMS-587319-03	N/A		N/A		N/A		N/A		
B067	BMS-589149	N/A		N/A		200-2000	Rat	N/A		
B068	BMS-589151-01	N/A		N/A		>2000	Rat	N/A		
B069	BMS-589152-01	N/A		N/A		>2000	Rat	N/A		
B070	BMS-589154-01	N/A		N/A		>2000	Rat	N/A		
B071	BMS-639694	N/A		N/A		>2000	Rat	N/A		
B072	BMS-645402-01	N/A		N/A		N/A		N/A		
B073	BMS-647708-01	N/A		N/A		N/A		N/A		
B074	BMV 41936	N/A		N/A		>2000	Rat	N/A		No
B075	3-Bromo-5-nitro salicylaldehyde	N/A		N/A		N/A		N/A		No
B076	Buspar base (IV) (Hydrochloride)	N/A		N/A		N/A		N/A		No
B077	Buspar I	N/A		N/A		N/A		N/A		No
B078	Buspar II	N/A		N/A		N/A		N/A		No
B079	Buspar III	N/A		N/A		29	Rat	N/A		No
B080	Butane	N/A		N/A		N/A		N/A		No
B081	Butanol	1730 / 48hr @ 24.7C	Fathead minnow	1983 / 48hr	Daphnia	4400	Rat	310	Rat	No
B082	n-Butyl Acetate	100 (ppm)/96 hr	Blue Gill	18 / 96 hr	Fathead minnow	10768	Rat	N/A		No
B083	Butylated Hydroxy Toluene (BHT)	N/A		N/A		890	Rat	180	Mouse	No
B084	Butyne diol									
B085	Benzoic acid	N/A		N/A		N/A		N/A		No
B086	Blue Tetrazolium	N/A		N/A		N/A		N/A		No

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 2 of 3):

Ref. N ^o or Code	Material/ Substance ⁽²⁾	Ecological Aquatic				Toxicological				Radioactive Yes/No
		LC ₅₀ mg/l	Species	EC ₅₀ ⁽⁴⁾ mg/l	Species	Oral LD ₅₀ mg/kg	Species	IV LD ₅₀ mg/kg	Species	
B087	Boric acid	N/A		N/A		2660	Rat	N/A		No
B088	Bromoacetic Acid	N/A		N/A		50	Rat	N/A		No
B089	Bromophenol blue	N/A		N/A		N/A		N/A		No
C001	Calcium Ammonium Nitrate	N/A		N/A		N/A		N/A		No
C002	Calcium Hydroxide	N/A		N/A		7340	Rat	N/A		No
C003	(1R)-10-Camphorsulfonic Acid (CSA)	N/A		N/A		N/A		N/A		No
C004	Carbobenzyloxy-L-alanine	N/A		N/A		N/A		N/A		
C005	Chlorine Dioxide	0.17	Fathead	N/A		292	Rat	N/A		No
C006	Chloroform	2030000	Rainbow Trout	N/A		908	Rat	N/A		No
C007	1-3-Chlorophenyl Piperazine HCl	N/A		N/A		228	Rat	N/A		No
C008	Chlorotrimethylsilane	Slightly poisonous to shrimps		N/A		5660 uL/kg	Rat	N/A		No
C009	5-Cholorvaleryl chloride									
C010	CIP 100 (or equivalent)	N/A		N/A		>1000	Rat	N/A		No
C011	CIP 500 (or equivalent)	N/A		N/A		N/A		N/A		No
C012	Cyclohexane	93-117 / 96	Fathead minnow	N/A		12750	Rat	N/A		No
C013	Carbon Tetrachloride	N/A		N/A		2350 5760	Rat Rabbit			No
C014	Celite 545	N/A		N/A		N/A		N/A		No
C015	3-Chloroaniline	N/A		N/A		334 256	Mouse Rat	N/A		No
C016	b-Cyclodextrin	N/A		N/A		18800 >12500	Rat Mouse	N/A		No
D001	D4T.FP	N/A		>980 >1000	Daphnia Activated sludge	882 >500	Rat Mouse	N/A		No
D002	D4T.NMPO	N/A		N/A		>2000	Rat	N/A		No
D003	D4T.I	N/A		N/A		>2000	Rat	N/A		No
D004	D4T.II	>100/96 hr	Rainbow Trout	57/48 hr	Daphnia	>2000	Rat	N/A		No
D005	Darco G-60	N/A		N/A		N/A		440	Mouse	No
D006	1,4-Diazabicyclo(2,2,2)octane (DABCO)									

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 2 of 3):

Ref. Nº or Code	Material/ Substance ⁽²⁾	Ecological Aquatic				Toxicological				Radioactive Yes/No
		LC ₅₀ mg/l	Species	EC ₅₀ ⁽⁴⁾ mg/l	Species	Oral LD ₅₀ mg/kg	Species	IV LD ₅₀ mg/kg	Species	
D007	1,4-Dibromobutane	N/A		N/A		N/A		N/A		No
D008	1,3-Dibromo-5,5-dimethylhydantoin (DBDMH)	N/A		>1021	Daphnia	250	Rat	N/A		No
D009	Didanosine (ddI)	N/A		N/A		>2000	Rat/Dog	N/A		No
D010	Diethyl Ether	2560/96 hr	Fathead minnow	N/A		1215	Rat	1440	Rat	No
D011	Diisopropylazodicarboxylate (DIAD)	Not available		N/A		N/A		N/A		No
D012	N,N-Diisopropylethylamine	Not available		N/A		606	Rat	N/A		No
D013	Dimethylacetamide (DMA)	1.5 g/l/96hr	Fathead minnow	N/A		4300	Rat	N/A		No
D014	1-Dimethylaminododecane (ddA)	N/A		N/A		N/A		N/A		No
D015	3-dimethylaminopropyl amine (DAPA)	Not available		N/A		1870	Rat	N/A		No
D016	4-Dimethylaminopyridine (DMAP)	Not available		N/A		250	Rat	N/A		No
D017	N,N-Dimethylformamide (DMF)	9800 / 96 hr	Rainbow trout	14500 / 48 hr	Daphnia	2800	Rat	N/A		No
D018	1,4-Dimethylpiperazine	N/A		N/A		N/A		N/A		No
D019	Dimethylsulfite	N/A		N/A		N/A		N/A		No
D020	Dimethyl Sulfoxide	38g/l/96hr	Rainbow trout	N/A		14500	Rat	5360	Rat	No
D021	Dithiothreitol	N/A		N/A		N/A		94	Mouse	No
D022	DIW	N/A		N/A		N/A		N/A		No
D023	5,5-Dithiobis-(2-Nitrobenzoic acid)	N/A		N/A		N/A		N/A		No
E001	Ethanol	13000 / 96hr @ 12C	Rainbow trout	12.9 (g/l) 96 hr	Fathead	7060 6300	Rat Rabbit	1440	Rat	No
E002	Ethanolamine	100/48 hr	Shrimp	N/A		1720 1000 620	Rat Rabbit G. Pig	N/A		No
E003	Ethyl Acetate	230 / 96hr 200 / 96hr	Fathead minnow Bluegill	700 / 48hr	Daphnia	5620 4935	Rat Rabbit	N/A		No
E004	Ethyl Benzene	12.2 / 96 hr	Fathead minnow	N/A		3500	Rat	N/A		No
E005	N-Ethyl N'-dimethylaminopropyl Carbodiimide	N/A		N/A		Not available		N/A		No
E006	2-Ethyl Hexanoic Acid	N/A		N/A		3000	Rat	N/A		No

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 2 of 3):

Ref. Nº or Code	Material/ Substance ⁽²⁾	Ecological Aquatic				Toxicological				Radioactive Yes/No
		LC ₅₀ mg/l	Species	EC ₅₀ ⁽⁴⁾ mg/l	Species	Oral LD ₅₀ mg/kg	Species	IV LD ₅₀ mg/kg	Species	
E007	Epichlorohydrin	N/A		N/A		90 195	Rat Mouse	N/A		No
E008	Ethylenediaminetetraacetic acid	N/A		N/A		2000	Rat	N/A		No
E009	Ethyl-s-chloro-acetoacetate									
E010	Ethyl nicotinate	N/A		N/A		N/A		N/A		
E011	2-Ethylpyridine	N/A		N/A		N/A		N/A		No
E012	Energy	N/A		N/A		N/A		N/A		No
F001	N-Fluorobenzenesulfonamide	N/A		N/A		N/A		N/A		No
F002	4-Fluoro-3-nitrobenzotrifluoride	N/A		N/A		N/A		N/A		No
F003	Formic Acid	80-98/48 hr	Crab	N/A		1100 4000	Rat Dog	142 239	Mouse Rabbit	No
F004	Ferric Chloride hexahydrate	N/A		N/A		N/A		N/A		No
F005	Flocculant	N/A		N/A		N/A		N/A		No
G001	2,3,4,6-T-O-A-D-Glucopyranosyl Isothiocyanate	N/A		N/A		N/A		N/A		No
H001	Helium	N/A		N/A		N/A		N/A		No
H002	Heptanes	4924/24-96 hr	Daphnia	N/A		N/A		222	Mouse	No
H003	Hexamethyldisilazane	N/A		N/A		850 1100	Rat Rabbit	>100	Mouse	No
H004	n-Hexane	N/A		N/A		28710	Rat	N/A		No
H005	Hydrobenzamide	N/A		N/A		N/A		N/A		No
H006	Hydrochloric Acid	100-330 / 48hr	Starfish	N/A		900	Rabbit	25000	Mouse	No
H007	Hydrogen	N/A		N/A		N/A		N/A		No
H008	Hydrogen Chloride	100-300/48 hr	Starfish	N/A		900	Rabbit	N/A		No
H009	1-Hydroxybenzotriazole Hydrate (HOBt)	N/A		N/A		N/A		N/A		No
H010	Hyflo supercel	N/A		N/A		N/A		N/A		No
H011	Hypophosphorous Acid (50%)	N/A		N/A		N/A		N/A		No
H012	Hydroxylammonium Chloride	N/A		N/A		141 408	Rat Mouse	N/A		No
I001	Imidazole	341.5 / 48 hr 130 / 48 hr 1200 / 17 hr	Daphnia Algae Bacteria	341.5 / 48 hr 130 / 48 hr 1200 / 17 hr	Daphnia Algae Bacteria	970	Rat	475	Mouse	No

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 2 of 3):

Ref. N ^o or Code	Material/ Substance ⁽²⁾	Ecological Aquatic				Toxicological				Radioactive Yes/No
		LC ₅₀ mg/l	Species	EC ₅₀ ⁽⁴⁾ mg/l	Species	Oral LD ₅₀ mg/kg	Species	IV LD ₅₀ mg/kg	Species	
I002	4-Imidazole carboxaldehyde	N/A		N/A		N/A		N/A		No
I003	Isobutylacetate	100/96 hr	Blue gill	N/A		13400 4800	Rat Rabbit	N/A		No
I004	Isobutylchloroformate	N/A		N/A		N/A		N/A		No
I005	Isobutyraldehyde	N/A		N/A		2810	Rat	N/A		No
I006	Isopropanol (2-Propanol)	>100	Fish, Daphnia Algae, Bacteria	N/A		4700-5500	Rat	N/A		No
I007	Isopropyl acetate	N/A		N/A		6750	Rat	N/A		No
I008	ISCEON 404A	N/A		N/A		N/A		N/A		No
L001	Lanthanum Nitrate	N/A		N/A		N/A		N/A		No
L002	Light oil (eg BP Gas Oil)	N/A		N/A		6750 6946	Rat / Rabbit	N/A		No
L003	Lipase Enzyme	N/A		N/A		>10400	Rat	104	Rat	No
L004	Lithium Hexamethyldisilazide in THF (LHMDS)	N/A		N/A		N/A		N/A		No
L005	Lithium Hydroxide monohydrate	N/A	N/A	N/A		N/A		N/A		No
M001	Methanesulfonic Acid	>1100 / 96hr @ pH 7.0	Lebistes reticulatus	1.7 / 24hr	Daphnia	415	Rat	N/A		No
M002	Methanol	13.68g/l/ 96hr@12 C	Rainbow trout	N/A		5628	Rat	N/A		No
M003	Methoxylamine Hydrochloride	N/A		N/A		1600	Rat	N/A		No
M004	Methoxyphenyl acetic acid	N/A		N/A		N/A		180	Mouse	No
M005	2-Methoxy-propene	N/A		N/A		1870	Rat	N/A		No
M006	Methylamine Solution (40%)	N/A		N/A		100	Rat	N/A		No
M007	(s)-a-Methyl benzylamine	N/A		N/A		N/A		N/A		No
M008	Methylene Chloride	224 / 48hr 193 / 96hr (flow through) 310 / 96hr (static)	Daphnia Fathead minnow	99/48 hr 224/48 hr	Fathead Daphnia	1500-2500	Rat	N/A		No
M009	Methyl ethyl ketone	N/A		N/A		2737 4050	Rat Mouse	N/A		No
M010	Methyl isobutyl Ketone	505 / 96hr	Fathead minnow	675-890/48 hr	Fish	2080	Rat	N/A		No
M011	N-methylmorpholine	N/A		N/A		1960	Rat	N/A		No

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 2 of 3):

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		LC ₅₀ mg/l	Species	EC ₅₀ ⁽⁴⁾ mg/l	Species	Oral LD ₅₀ mg/kg	Species	IV LD ₅₀ mg/kg	Species	
M012	1-methyl-2-pyrrolidinone	1000-4600 / 48hr	Goldorfen	N/A		3914	Rat	80500 ug/kg	Rat	No
M013	Methyl-tert-butyl Ether	>100	Fish	>100	Daphnia, & sewage treatment	>2000	Rat	N/A		No
M014	MJ 13701	N/A		N/A		N/A		N/A		No
M015	Monoethylene Glycol	18500-41000 / 96 hr	Rainbow trout	N/A		4700 6610	Rat G. Pig	N/A		No
M016	3-Mercaptopropionic acid	N/A		N/A		96	Rat	N/A		No
M017	Mercury (II) Acetate	N/A		N/A		40900 / 23900	Rat /Mse	N/A		No
M018	Mercury (II) Chloride	N/A		N/A		1 / 6	Rat /Mse	N/A		No
M019	Methylacetoacetate	N/A		N/A		3228	Rat	N/A		No
M020	2-Methyl-1-propanol (Isobutyl alcohol)	2600 / 24 hr 1000-3000 / 96 hr	Goldfish Bleak	1463 / 24 hr 1439 / 48 hr	Daphnia magna	2460	Rat	N/A		No
M021	2-Methylpropan-2-ol	N/A		N/A		3500	Rat	N/A		No
M022	Molecular Sieve 3A	N/A		N/A		N/A		N/A		No
N001	Natural Gas	N/A		N/A		N/A		N/A		No
N002	Nefazodone HCl Crude	N/A		6.6	Daphnia	582	Rat	N/A		No
N003	Nefazodone HCl FP	N/A		6.6	Daphnia	600 / 1200	Rat / Mouse	N/A		No
N004	Nefazodone II	N/A		65.1	Daphnia	221	Rat	N/A		No
N005	Nitric Acid	100-300/48 hr	Starfish	N/A		N/A		25000	Mouse	No
N006	Nitrogen	N/A		N/A		N/A		N/A		No
N007	Nitrous Oxide	N/A		N/A		N/A		N/A		No
N008	1-Naphthol	N/A		N/A		1870 275	Rat Mouse	N/A		No
N009	Nihydrin TLC Spray	N/A		N/A		N/A		N/A		No
N010	Nitromethane	N/A		N/A		940 950	Rat Mouse	N/A		No
O001	Octadecylamine	N/A		N/A		1000	Rat	N/A		
O002	Octadecylamine acetate	N/A		N/A		N/A		N/A		No
O003	Optisperse PO5068 (or equivalent)	N/A		N/A		N/A		N/A		No
O004	Oxygen	N/A		N/A		N/A		N/A		No

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		LC ₅₀ mg/l	Species	EC ₅₀ ⁽⁴⁾ mg/l	Species	Oral LD ₅₀ mg/kg	Species	IV LD ₅₀ mg/kg	Species	
O005	d-2-Octanol	N/A		N/A		N/A		N/A		No
P001	Palladium / Carbon (5%)	>10000 / 96hr	Brachydanio rerio	>10000 / 24 hr	Daphnia magnia	N/A	440	Mouse		No
P002	Palladium / Alumina (5%)									
P003	Peanut Oil	N/A		N/A		N/A		N/A		No
P004	Pen V Amidase	N/A		N/A		N/A		N/A		No
P005	Perchloric Acid	N/A		N/A		1100	Rat	N/A		No
P006	Phosphoric Acid (85%)	N/A		N/A		1530	Rat	25 (g/kg)	Mouse	No
P007	Pivaloyl Chloride	N/A		N/A		N/A		N/A		No
P008	Platinum / Carbon (5%)	N/A		N/A		N/A		N/A		No
P009	Polyelectrolyte	N/A		N/A		N/A		N/A		No
P010	Potassium Bicarbonate	N/A		N/A		N/A		N/A		No
P011	Potassium Carbonate	N/A		N/A		1870	Rat	N/A		No
P012	Potassium Hydroxide	80 ppm/24 hr	Mosquito	N/A		273	Rat	N/A		No
P013	Potassium Iodide	7.5 ppm	Daphnia	N/A		1982	Mouse	285	Rat	No
P014	Potassium Phosphate, dibasic	N/A		N/A		N/A		N/A		No
P015	Potassium Phosphate, monobasic	N/A		N/A		N/A		N/A		No
P016	L-Proline	N/A		N/A		N/A		N/A		No
P017	Propionyl Bromide	N/A		N/A		N/A		N/A		No
P018	Purified water	N/A0		N/A		N/A		N/A		No
P019	Pyridine	106 / 96hr @24C pH 7.73	Fathead minnow	85.6/96 hr	Fathead minnow	8891	Rat	1250	Mouse	No
P020	Pyridinium p-Toluene Sulfonate	N/A		N/A		N/A		N/A		No
P021	Palladium Chloride	N/A		N/A		2704 >1000	Rat Mouse	N/A		No
P022	Phosphorous oxychloride									
P023	Phenylacetaldehyde	N/A		N/A		1550	Rat	N/A		No
P024	Phosphorus pentoxide	N/A		N/A		>1000	Rat	N/A		No
P025	Picryl Chloride	N/A		N/A		N/A		N/A		No
P026	Potassium Bromide	N/A		N/A		3070 3120	Rat Mouse	N/A		No
P027	Potassium Hydrogen Phthalate	N/A		N/A		>3200	Rat	N/A		No
P028	Potassium Iodate	N/A		N/A		N/A		N/A		No

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		LC ₅₀ mg/l	Species	EC ₅₀ ⁽⁴⁾ mg/l	Species	Oral LD ₅₀ mg/kg	Species	IV LD ₅₀ mg/kg	Species	
P029	Potassium Sulphate	N/A		N/A		6600	Rat	N/A		No
P030	Potassium dihydrogen phosphate	N/A		N/A		N/A		N/A		No
P031	Peracetic acid	N/A		N/A		1193	Rat	N/A		No
P032	(s)-(+)-1,2-propanediol	N/A		N/A		N/A		N/A		
P033	Propylene oxide	N/A		N/A		380	Rat	N/A		
Q001	Quinaldine Red	N/A		N/A		N/A		N/A		No
R001	Resazurin tablets	N/A		N/A		N/A		N/A		No
S001	Sodium Acetate	>1000 / 48 hr	Golden Orfe	N/A		3530	Rat	38	Rat	No
S002	Sodium Bicarbonate	N/A		N/A		4220	Rat	N/A		No
S003	Sodium Bisulfate	N/A		N/A		N/A		N/A		No
S004	Sodium Bisulfite	500/48 hr static screen	Daphnia	N/A		>2000	Rat	130	Mouse	No
S005	Sodium Borohydride	N/A		N/A		2000	Rat	115 / 65	Rat / Rabbit	No
S006	Sodium Bromate	N/A		N/A		N/A		N/A		No
S007	Sodium Carbonate	320 / 96hr	Bluegill	N/A		4090	Rat	N/A		No
S008	Sodium Chloride	N/A		N/A		3000	Rat	N/A		No
S009	Sodium Dithionite	N/A		N/A		N/A		N/A		No
S010	Sodium ethoxide	N/A		N/A		N/A		N/A		
S011	Sodium Ethyl Hexanoate	N/A		N/A		N/A		N/A		No
S012	Sodium Hydroxide	33-100/48 hr	Starfish	N/A		500	Rabbit	N/A		No
S013	Sodium Hypochlorite	5.9/96 hr	Fathead minnow	N/A		8910	Rat	N/A		No
S014	Sodium Metabisulfite	N/A		N/A		1130-1900	Rat	115	Rat	No
S015	Sodium Phosphate monobasic	N/A		N/A		8290	Rat	N/A		No
S016	SQ 02,072	N/A		N/A		N/A		N/A		No
S017	SQ 14224	N/A		N/A		N/A		N/A		No
S018	SQ 14225	N/A		N/A		6000	Mouse	1040	Mouse	No
S019	SQ 25670	N/A		N/A		N/A		N/A		No
S020	SQ 26621	N/A		N/A		N/A		N/A		No
S021	SQ 27616	>100 220	Rainbow trout, algae, bacteria Daphnia Rainbow Trout	N/A		>2000	Rat	N/A		No
S022	SQ 28303	>100/48 hr	Rainbow Trout	N/A		>2000	Rat	N/A		No

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		LC ₅₀ mg/l	Species	EC ₅₀ ⁽⁴⁾ mg/l	Species	Oral LD ₅₀ mg/kg	Species	IV LD ₅₀ mg/kg	Species	
S023	SQ 28355	>100 / 76 hr	Rainbow Trout	>98.9 / 48 hr	Daphnia	>2000	Rat	N/A		No
S024	SQ 28449	>87	Rainbow Trout	>87	Daphnia	>2000	Rat	N/A		No
S025	SQ 28555	N/A		>480 1198	Daphnia Activated sludge	N/A		N/A		No
S026	SQ 28646	>100	Rainbow Trout	>100	Daphnia	907-1302	Rat	290	Mouse	No
S027	SQ 28796	>100	Rainbow Trout	39/48 hr	Daphnia	>2000	Rat	N/A		No
S028	SQ 29242	977	Rainbow Trout	N/A		>2000	Rat	N/A		No
S029	SQ 29517	N/A		N/A		2420	Mouse	N/A		No
S030	SQ 31175	N/A		N/A		N/A		N/A		No
S031	SQ 32034	N/A		N/A		>2000	Rat	N/A		No
S032	SQ 32035	>100	Rainbow Trout	>100	Daphnia	>2000	Rat	N/A		No
S033	SQ 35154	N/A		N/A		N/A		N/A		No
S034	SR 47436 Crude	N/A		N/A		N/A		N/A		No
S035	SR 47436 Pure	N/A		N/A		N/A		N/A		No
S036	SR 47563	N/A		0.98/72 hr	Algae	2000	Rat	N/A		No
S037	SR 47929	N/A		N/A		N/A		N/A		No
S038	SR 48001A	247/48 hr	Daphnia	N/A		>2000	Rat	N/A		No
S039	SR 48941	N/A		N/A		N/A		N/A		No
S040	Sulfamic acid	N/A		N/A		3160	Rat	N/A		
S041	Sulphuric Acid	80-90/48 hr	Shrimp	N/A		2140	Rat	N/A		No
S042	Sulphuryl Chloride	N/A		N/A		N/A		N/A		No
S043	Syltherm XLT	N/A		N/A		N/A		N/A		No
S044	Selenium Powder black	38 / 72hr	Daphnia	>100 / 48 hr	Fish	6700	Rat	N/A		No
S045	Silver Nitrate	N/A		N/A		N/A		N/A		No
S046	tri-Sodium Citrate	N/A		N/A		N/A		N/A		No
S047	Sodium dihydrogen phosphate	N/A		N/A		8290	Rat	N/A		No
S048	Sodium ethoxide	N/A		N/A		N/A		N/A		
S049	Sodium Methoxide	N/A		N/A		2037	Rat	N/A		No
S050	Sodium Nitrite	N/A		N/A		186	Rabbit	N/A		No
S051	Sodium Nitroprusside	N/A		N/A		99 / 34	Rat / Rbt	N/A		No
S052	Sodium Phosphate, dibasic anhydrous	N/A		N/A		17000	Rat	N/A		No

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		LC ₅₀ mg/l	Species	EC ₅₀ ⁽⁴⁾ mg/l	Species	Oral LD ₅₀ mg/kg	Species	IV LD ₅₀ mg/kg	Species	
S053	Sodium Persulphate	N/A		N/A		N/A		N/A		No
T001	L-Tartaric acid	N/A		N/A		1600-3200	Mse	485	Mse	No
T002	Tetrabutylammonium bromide	N/A		N/A		N/A		N/A		No
T003	Tetrahydrofuran	2820 / 48hr 2160 / 96hr	Goldfern Fathead minnow	>3700/192 hrs >580 / 10hr	Algae Bacteria	4400	Rat	N/A		No
T004	Tetramethylethylenediamine	N/A		N/A		1580	Rat	N/A		No
T005	Thiobenzoic acid	N/A		N/A		N/A		N/A		No
T006	2-Thiophenesulfonyl chloride	N/A		N/A		N/A		N/A		No
T007	Thionyl Chloride	N/A		N/A		N/A		N/A		No
T008	Toluene	313 / 48hr / 13 / 96hr 34.27 / 96hr	<i>Daphnia/ Bluegill</i> Fathead minnow	60	<i>Daphnia</i> magnia	5000	Rat	N/A		No
T009	Tributyl methyl ammonium chloride (75% in water)	N/A		N/A		N/A		N/A		No
T010	Tributylphosphine	N/A		N/A		750	Rat	N/A		No
T011	Trichloroethane	52.8/96 hr	Fathead	52.9/96 hr	Fathead	836	Rat	N/A		No
T012	Triethylamine (TEA)	11.8/96 hr	Fathead	200 / 96hr	Daphnia	460	Rat	N/A		No
T013	Triethylorthoformate	N/A		N/A		7060	Rat	N/A		No
T014	Triethylsilane boron trifluoride acetic acid complex									
T015	Triethylsilyl chloride	N/A		N/A		N/A		N/A		No
T016	Triethylzilon	N/A		N/A		N/A		N/A		No
T017	Trifluoroacetic Acid	N/A		N/A		200	Rat	N/A		No
T018	Trifluoroacetic anhydride	N/A		N/A		N/A		N/A		No
T019	Trimethylene Chlorobromide	N/A		N/A		930	Rat	N/A		No
T020	Triphenyl Phosphine	N/A		N/A		700	Rat	N/A		No
T021	n-Tetradecane	N/A		N/A		N/A		N/A		No
T022	Thiobarbituric acid	N/A		N/A		>5000	Rat	N/A		No
T023	Thymol blue	N/A		N/A		N/A		N/A		No
T024	Tributylamine	N/A		N/A		114 615	Rat Rabbit	N/A		No
T025	Trichloroacetyl chloride	N/A		N/A		600	Rat	N/A		No

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		LC ₅₀ mg/l	Species	EC ₅₀ ⁽⁴⁾ mg/l	Species	Oral LD ₅₀ mg/kg	Species	IV LD ₅₀ mg/kg	Species	
T026	Tetrabutylammonium hydrogen sulphate	N/A		N/A		555	Mouse	N/A		No
T027	Tetra-n-butylammonium Hydroxide	N/A		N/A		N/A		N/A		No
U001	Urea	N/A		N/A		14300	Rat	N/A		No
V001	Vanadium Pentoxide	10 - 100	Fish	10 - 100	Fish	N/A		N/A		No
V002	Vilsmeier Reagent	N/A		N/A		N/A		N/A		No
W001	Water	N/A		N/A		N/A		N/A		No
X001	Xylene	46 / 1hr	Fathead Minnow	N/A		4300	Rat	N/A		No
		13.5 / 96hr	Rainbow trout							
Z001	Zero Air	N/A		N/A		N/A		N/A		No
Z002	Zinc dust	N/A		N/A		>950	Mouse	N/A		No
Z003	Zinc Bromide	114 / 96hr	Fathead minnow	N/A		N/A		N/A		No

Notes (cont.): 4. Where available!

N/A indicates that information was not available.

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 3 of 3):

Ref. Nº or Code	Material/ Substance ⁽²⁾	TA Luft Class 1, 2 or 3	Odour			EU Lists I and II (Tick and specify Group/Family Number)			
			Odorous Yes/No	Description	Threshold µg/m ³	Dangerous Substances Directive 76/464/EEC		Groundwater Directive 80/68/EEC	
						List I	List II +129 ⁽⁵⁾	List I	List II
A001	Acetic Acid	II	Yes	Colourless liquid with Pungent odour	1.0ppm, 0.037-0.15 ppm	N/A	Y (3)	N/A	Y (3)
A002	Acetic Anhydride	I	Yes	Pungent	0.12 – 0.36 ppm	N/A	Y (3)	N/A	Y (3)
A003	Acetone	III	Yes	Characteristic pungent odour	3.6-653 ppm	N/A	Y (3)	N/A	Y (3)
A004	Acetonitrile	II	Yes	Aromatic odour	214 ppm	Y (1)	N/A	Y (1)	N/A
A005	Acetoxyacetyl Chloride	Not classified	Yes	Pungent	N/A	Y (1)	N/A	Y (1)	N/A
A006	Acetylene	Not classified	Yes	Garlic Odour	240	Y (7)	N/A	Y (7)	N/A
A007	N-Acetylimidazole (98%)	Not classified	No	N/A	N/A	N/A	N/A	N/A	N/A
A008	Activated Carbon	Not classified	No	N/A	N/A	N/A	N/A	N/A	N/A
A009	ACHNP.TEA	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
A010	Adenosine Deaminase Enzyme	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
A011	Alcohol SD3A	Not classified	Yes	Characteristic	49-716 ppm	N/A	N/A	N/A	N/A
A012	Aluminium Chloride	Not classified	Yes	Sharp acidic odour	N/A	N/A	N/A	N/A	N/A
A013	(1R,2S)-(-)-2-amino-1,2-diphenylethanol	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
A014	Ammonia Solution, 30% Ammonium Hydroxide	Not classified	Yes	Pungent odour	0.037 ppm	N/A	Y (8)	N/A	Y (8)
A015	Ammonium Acetate	Not classified	Yes	Weak Ammonia	N/A	N/A	Y (8)	N/A	Y (8)
A016	Ammonium Dihydrogen Phosphate	Not classified	N/A	N/A	N/A	N/A	Y (5)	N/A	Y (5)
A017	Argon	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
A018	Azodiisobutronitrile (AIBN)	Not classified	Yes	Characteristic mild odour	N/A	N/A	N/A	N/A	N/A
A019	3-Aminomethylallizarin-N,N-Diacetic acid	Not classified	No	N/A	N/A	N/A	N/A	N/A	N/A
A020	Ammonium Ferric Sulphate	Not classified	No	N/A	N/A	N/A	Y (8)	N/A	Y (8)
A021	di-Ammonium Hydrogen Orthophosphate	Not classified	N/A	N/A	N/A	N/A	Y (5)	N/A	Y (5)
A022	Ammonium Oxalate	Not classified	No	N/A	N/A	N/A	Y (8)	N/A	Y (8)
A023	Ammonium Persulphate	Not classified	No	N/A	N/A	N/A	Y (8)	N/A	Y (8)

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 3 of 3):

Ref. Nº or Code	Material/ Substance ⁽²⁾	TA Luft Class 1, 2 or 3	Odour			EU Lists I and II (Tick and specify Group/Family Number)			
			Odorous Yes/No	Description	Threshold µg/m ³	Dangerous Substances Directive 76/464/EEC		Groundwater Directive 80/68/EEC	
						List I	List II +129 ⁽⁵⁾	List I	List II
A024	Ammonium Sulphate	Not classified	Yes	Characteristic	N/A	N/A	Y (8)	N/A	Y (8)
A025	p-Anisiidine	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
B001	Benzene	Not classified	Yes	Characteristic Aromatic hydrocarbon odour	2.7 ppm	Y (4)	N/A	Y (4)	N/A
B002	Benzoyl Chloride	I	Yes	Pungent	N/A	Y (7)	N/A	Y (7)	N/A
B003	Benzyl 2-bromoacetate	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B004	BMS 181626	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B005	BMS 182252-01	Not classified	No	N/A	N/A	N/A	N/A	N/A	N/A
B006	BMS 182940	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B007	BMS 182940 E Solution (36.65% w/v)	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B008	BMS 183040-01	Not classified	No	N/A	N/A	N/A	N/A	N/A	N/A
B009	BMS 183981-01	Not classified	Yes	Not remarkable	N/A	N/A	N/A	N/A	N/A
B010	BMS 184163-01	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B011	BMS 184260-01	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B012	BMS 184537-01	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B013	BMS 186716	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B014	BMS 187266-02	Not classified	Yes	Sulphurous	N/A	N/A	N/A	N/A	N/A
B015	BMS 189921-01	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B016	BMS 190313	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B017	BMS 195829	Not classified	Yes	Sulphurous	N/A	N/A	N/A	N/A	N/A
B018	BMS 196099	Not classified	No	N/A	N/A	N/A	N/A	N/A	N/A
B019	BMS 200475	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B020	BMS 204352-01	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B021	BMS 205786	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B022	BMS 207771-01	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B023	BMS 207873	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B024	BMS 208112	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 3 of 3):

Ref. Nº or Code	Material/ Substance ⁽²⁾	TA Luft Class 1, 2 or 3	Odour			EU Lists I and II (Tick and specify Group/Family Number)			
			Odorous Yes/No	Description	Threshold µg/m ³	Dangerous Substances Directive 76/464/EEC		Groundwater Directive 80/68/EEC	
						List I	List II +129 ⁽⁵⁾	List I	List II
B025	BMS 208143	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B026	BMS 208778	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B027	BMS 214662	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B028	BMS 214702-01	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B029	BMS 217787-01	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B030	BMS 217947-01	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B031	BMS 230193	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B032	BMS 231262	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B033	BMS 232387-01	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B034	BMS 232623-01	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B035	BMS 232632-01	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B036	BMS 232632-05	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B037	BMS 233101-01	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B038	BMS 233110-01	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B039	BMS 232471-01	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B040	BMS 232484-01	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B041	BMS 233470-01	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B042	BMS 233471-01	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B043	BMS 239089-01	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B044	BMS 251736-01	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B045	BMS 265688-02	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B046	BMS 275291-01	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B047	BMS 281643-01	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B048	BMS 285392-01	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B049	BMS 291129-01	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B050	BMS 291130-01	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B051	BMS 291132-01	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B052	BMS 309901-01	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B053	BMS 310706-01/03	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 3 of 3):

Ref. Nº or Code	Material/ Substance ⁽²⁾	TA Luft Class 1, 2 or 3	Odour			EU Lists I and II (Tick and specify Group/Family Number)			
			Odorous Yes/No	Description	Threshold µg/m ³	Dangerous Substances Directive 76/464/EEC		Groundwater Directive 80/68/EEC	
						List I	List II +129 ⁽⁵⁾	List I	List II
B054	BMS 360254-01	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B055	BMS-394154-01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B056	BMS-477118-11 DPP4/Saxagliptin	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B057	BMS-482204-03	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B058	BMS -505112	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B059	BMS-512148-05/SLGT	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B060	BMS-528233-01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B061	BMS-528235-01	N/A	No	N/A	N/A	N/A	N/A	N/A	N/A
B062	BMS-540215-01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B063	BMS-562247 – Apixaban/FactorXa	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B064	BMS 582664-02 VegFr	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B065	BMS-587172	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B066	BMS-587319-03	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B067	BMS-589149	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B068	BMS-589151-01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B069	BMS-589152-01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B070	BMS-589154-01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B071	BMS-639694	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B072	BMS-645402-01	N/A	None	N/A	N/A	N/A	N/A	N/A	N/A
B073	BMS-647708-01		None	N/A	N/A	N/A	N/A	N/A	N/A
B074	BMV 41936	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B075	3-Bromo-5-nitro salicylaldehyde	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B076	Buspar base (IV) (Hydrochloride)	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B077	Buspar I	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B078	Buspar II	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B079	Buspar III	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 3 of 3):

Ref. Nº or Code	Material/ Substance ⁽²⁾	TA Luft Class 1, 2 or 3	Odour			EU Lists I and II (Tick and specify Group/Family Number)			
			Odorous Yes/No	Description	Threshold µg/m ³	Dangerous Substances Directive 76/464/EEC		Groundwater Directive 80/68/EEC	
						List I	List II +129 ⁽⁵⁾	List I	List II
B080	Butane	Not classified	Yes	Gasoline	6.16 ppm	N/A	N/A	N/A	N/A
B081	Butanol	III	Yes	Characteristic	0.12-11 ppm	N/A	N/A	N/A	N/A
B082	N-Butyl Acetate	III	Yes	Pleasant, fragrant, fruity	0.063-7.4 ppm	N/A	N/A	N/A	N/A
B083	Butylated Hydroxy Toluene (BHT)	Not classified	No	N/A	N/A	N/A	N/A	N/A	N/A
B084	Butyne diol	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B085	Benzoic acid	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B086	Blue Tetrazolium	Not classified	N/A	N/A	N/A	Y (1)	N/A	Y (1)	N/A
B087	Boric acid	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B088	Bromoacetic Acid	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B089	Bromophenol blue	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
C001	Calcium ammonium nitrate	Not classified	N/A	N/A	N/A	N/A	Y (8)	N/A	Y (8)
C002	Calcium Hydroxide	Not classified	N/A	N/A	N/A	Y (8)	N/A	Y (8)	N/A
C003	(1R)-10-Camphorsulfonic acid (CSA)	Not classified	Yes	Camphor	0.051 ppm	N/A	N/A	N/A	N/A
C004	Carbobenzyloxy-L-alanine	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
C005	Chlorine Dioxide	Not classified	Yes	Unpleasant, similar to Cl	0.1 ppm	Y (1)	N/A	Y (1)	N/A
C006	Chloroform	I	Yes	Pleasant, sweet odour	85 ppm air 2.4 ppm H2O	Y (1)	N/A	Y (1)	N/A
C007	1-3-Chlorophenyl Piperazine HCl	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
C008	Chlorotrimethylsilane	Not classified	Yes	Pungent odour, heavier than air	N/A	N/A	N/A	N/A	N/A
C009	5-Chlorovaleryl chloride		N/A	N/A	N/A				
C010	CIP 100 (or equivalent)	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
C011	CIP 500 (or equivalent)	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
C012	Cyclohexane	III	Yes	Pungent, gasoline like	0.18 – 300 ppm	Y (7)	N/A	Y (7)	N/A
C013	Carbon Tetrachloride	Not classified	N/A	N/A	N/A	Y (CCl ₄)	N/A	Y (CCl ₄)	N/A
C014	Celite 545	Not classified	No	N/A	N/A	N/A	N/A	N/A	N/A
C015	3-Chloroaniline	Not classified	No	N/A	N/A	N/A	N/A	N/A	N/A
C016	B-Cyclodextrin	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 3 of 3):

Ref. Nº or Code	Material/ Substance ⁽²⁾	TA Luft Class 1, 2 or 3	Odour			EU Lists I and II (Tick and specify Group/Family Number)			
			Odorous Yes/No	Description	Threshold µg/m ³	Dangerous Substances Directive 76/464/EEC		Groundwater Directive 80/68/EEC	
						List I	List II +129 ⁽⁵⁾	List I	List II
D001	D4T.FP	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
D002	D4T.NMPO	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
D003	D4T I	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
D004	D4T.II	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
D005	Darco G-60	Not classified	No	N/A	N/A	N/A	N/A	N/A	N/A
D006	1,4-Diazabicyclo(2.2.2)octane (DABCO)_	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
D007	1,4-Dibromobutane	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
D008	1,3-Dibromo-5,5-dimethylhydantoin (DBDMH)	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
D009	Didanosine (ddI)	Not classified	No	N/A	N/A	N/A	N/A	N/A	N/A
D010	Diethyl Ether	III	Yes	Aromatic	8.9 ppm	N/A	N/A	N/A	N/A
D011	Diisopropylazodicarboxylate (DIAD)	Not classified	Yes	Pungent	N/A	N/A	N/A	N/A	N/A
D012	N,N-Diisopropylethylamine	Not classified	Yes	Amine like	N/A	N/A	N/A	N/A	N/A
D013	Dimethylacetamide (DMA)	II	Yes	Amine-like	46.8 ppm	N/A	N/A	N/A	N/A
D014	1-Dimethylaminododecane (ddA)	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
D015	3-dimethylaminopropyl amine (DAPA)	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
D016	4-Dimethylaminopyridine (DMAP)	Not classified	Yes	Unpleasant, amine-like	N/A	N/A	N/A	N/A	N/A
D017	N,N-Dimethylformamide (DMF)	II	Yes	Amine-like	0.47-100 ppm	N/A	N/A	N/A	N/A
D018	1,4-Dimethylpiperazine	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
D019	Dimethylsulfite	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
D020	Dimethyl Sulfoxide	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
D021	Dithiothreitol	Not classified	Yes	Unpleasant	N/A	N/A	N/A	N/A	N/A
D022	DIW	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
D023	5,5-Dithiobis-(2-Nitrobenzoic acid)	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 3 of 3):

Ref. Nº or Code	Material/ Substance ⁽²⁾	TA Luft Class 1, 2 or 3	Odour			EU Lists I and II (Tick and specify Group/Family Number)			
			Odorous Yes/No	Description	Threshold µg/m ³	Dangerous Substances Directive 76/464/EEC		Groundwater Directive 80/68/EEC	
						List I	List II +129 ⁽⁵⁾	List I	List II
E001	Ethanol	III	Yes	Characteristic	10 – 350 ppm	N/A	Y	N/A	Y
E002	Ethanolamine	Not classified	Yes	Slight ammonia	2.6 ppm	N/A	N/A	N/A	N/A
E003	Ethyl Acetate	III	Yes	Fruity	1 ppm	Y (8)	N/A	Y (8)	N/A
E004	Ethyl Benzene	II	Yes	Sweet, gasoline like	140 ppm	N/A	N/A	N/A	N/A
E005	N-Ethyl N'-dimethyl aminopropyl Carbodiimide (EDAC)	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
E006	2-Ethyl Hexanoic Acid	II	N/A	N/A	N/A	N/A	N/A	N/A	N/A
E007	Epichlorohydrin	Not classified	N/A	N/A	N/A	Y (1)	N/A	Y (1)	N/A
E008	Ethylenediaminetetraacetic acid	Not classified	No	N/A	N/A	N/A	N/A	N/A	N/A
E009	Ethyl -2-chloro-acetoacetate			N/A					
E010	Ethyl nicotinate		N/A	N/A	N/A				
E011	2-Ethylpyridine	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
E012	Energy	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
F001	N-Fluorobenzenesulfonamide	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
F002	4-Fluoro-3-nitrobenzotrifluoride	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
F003	Formic Acid	Not classified	Yes	Pungent, penetrating odour	49 ppm	N/A	N/A	N/A	N/A
F004	Ferric Chloride hexahydrate	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
F005	Flocculant	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
F006	Formamide		N/A	N/A	N/A				
G001	2,3,4,6-T-O-A-D-Glucopyranosyl Isothiocyanate	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
H001	Helium	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
H002	Heptanes	Not classified	Yes	Aromatic	150 ppm	N/A	N/A	N/A	N/A
H003	Hexamethyl Disilazane	II	Yes	Ammonia-like	N/A	N/A	N/A	N/A	N/A
H004	n-Hexane	Not classified	N/A		N/A	N/A	N/A	N/A	N/A
H005	Hydrobenzamide	Not classified	Yes	Bitter almond odour	N/A	N/A	N/A	N/A	N/A
H006	Hydrochloric Acid	Not classified	Yes	Pungent, sharp, irritating	<5 ppm	N/A	N/A	N/A	N/A
H007	Hydrogen	Not classified	N/A		N/A	N/A	N/A	N/A	N/A

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 3 of 3):

Ref. Nº or Code	Material/ Substance ⁽²⁾	TA Luft Class 1, 2 or 3	Odour			EU Lists I and II (Tick and specify Group/Family Number)			
			Odorous Yes/No	Description	Threshold µg/m ³	Dangerous Substances Directive 76/464/EEC		Groundwater Directive 80/68/EEC	
						List I	List II +129 ⁽⁵⁾	List I	List II
H008	Hydrogen Chloride	Not classified	Yes	Pungent	0.77 ppm	N/A	N/A	N/A	N/A
H009	1-Hydroxybenzotriazole Hydrate (HOBt)	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
H010	Hyflo supercel	Not classified	Yes	Slight earthy odour	N/A	N/A	N/A	N/A	N/A
H011	Hypophosphorous Acid (50%)	Not classified	No	N/A	N/A	N/A	Y (5)	N/A	Y (5)
H012	Hydroxylammonium Chloride	Not classified	N/A	N/A	N/A	N/A	Y (8)	N/A	Y (8)
I001	Imidazole	Not classified	Yes	Amine-like	N/A	N/A	N/A	N/A	N/A
I002	4-Imidazole carboxaldehyde	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
I003	Isobutylacetate	III	Yes	Characteristic, fruity	0.36-3.6 ppm	N/A	N/A	N/A	N/A
I004	Isobutylchloroformate	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
I005	Isobutyraldehyde	III	Yes	Garlic like	0.047–0.336 ppm	N/A	N/A	N/A	N/A
I006	Isopropanol (2-Propanol)	Not classified	Yes	Characteristic	37 – 610 ppm	N/A	N/A	N/A	N/A
I007	Isopropyl acetate	III	Yes		2.4 ppm	N/A	N/A	N/A	N/A
I008	ISCEON 404A	Not classified	Yes	Slightly ethereal	N/A	N/A	N/A	N/A	N/A
L001	Lanthanum Nitrate	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
L002	Light oil (e.g., BP Gas Oil)	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
L003	Lithium Hexamethyldisilazide in THF (LHMDS)	Not classified	Yes	Characteristic amine-like	N/A	N/A	N/A	N/A	N/A
L004	Lithium hydroxide monohydrate	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
L005	Lipase Enzyme	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
M001	Methanesulfonic Acid	Not classified	Yes	Characteristic	N/A	N/A	N/A	N/A	N/A
M002	Methanol	III	Yes	Characteristic, alcoholic odour	100 ppm	N/A	N/A	N/A	N/A
M003	Methoxylamine Hydrochloride	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
M004	Methoxylphenyl acetic acid	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
M005	2-Methoxy-propene	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
M006	Methylamine Solution (40%)	I	Yes	Strong, fishy odour	0.02 ppm	N/A	N/A	N/A	N/A
M007	(s)-a-Methyl benzylamine	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
M008	Methylene Chloride	I (C 3)	Yes	Ethereal-like odour	205-307 ppm	Y (1)	N/A	Y (1)	N/A

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 3 of 3):

Ref. Nº or Code	Material/ Substance ⁽²⁾	TA Luft Class 1, 2 or 3	Odour			EU Lists I and II (Tick and specify Group/Family Number)			
			Odorous Yes/No	Description	Threshold µg/m ³	Dangerous Substances Directive 76/464/EEC		Groundwater Directive 80/68/EEC	
						List I	List II +129 ⁽⁵⁾	List I	List II
M009	Methyl ethyl ketone	III	Yes	Characteristic	N/A	N/A	N/A	N/A	N/A
M010	Methyl isobutyl Ketone	III	Yes	Faint camphor-like	0.1-7.8 ppm	N/A	N/A	N/A	N/A
M011	N-methylmorpholine	Not classified	Yes	Characteristic	N/A	N/A	N/A	N/A	N/A
M012	N-methyl-2-pyrrolidinone	III	Yes	Amine like	N/A	N/A	N/A	N/A	N/A
M013	Methyl-tert-butyl Ether	Not classified	Yes	Terpene odour	N/A	N/A	N/A	N/A	N/A
M014	MJ 13701	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
M015	Monoethylene Glycol	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
M016	3-Mercaptopropionic acid	Not classified	N/A	N/A	N/A	Y (5)	N/A	Y (5)	N/A
M017	Mercury (II) Acetate	Not classified	N/A	N/A	N/A	Y (5)	N/A	Y (5)	N/A
M018	Mercury (II) Chloride	Not classified	N/A	N/A	N/A	Y (5)	N/A	Y (5)	N/A
M019	Methylacetoacetate	III	N/A	N/A	N/A	N/A	N/A	N/A	N/A
M020	2-Methyl-1-propanol (Isobutyl alcohol)	Not classified	Yes	Sweet, musty odour	N/A	N/A	N/A	N/A	N/A
M021	2-Methylpropan-2-ol (Tert butyl alcohol)	Not classified	Yes	Camphor-like odour	N/A	N/A	N/A	N/A	N/A
M022	Molecular Sieve 3A	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N001	Natural gas	Not classified	Yes	Distinctive	N/A	N/A	N/A	N/A	N/A
N002	Nefazodone HCl Crude	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N003	Nefazodone HCl FP	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N004	Nefazodone II	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N005	Nitric Acid	Not classified	Yes	Characteristic, choking	0.75 mg/m ³	N/A	Y (8)	N/A	Y (8)
N006	Nitrogen	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N007	Nitrous Oxide	Not classified	Yes	Slightly sweet	N/A	N/A	N/A	N/A	N/A
N008	1-Naphthol	Not classified	Yes	Phenolic odour	N/A	N/A	N/A	N/A	N/A
N009	Nihydrin TLC Spray	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N010	Nitromethane	II	N/A	N/A	N/A	N/A	N/A	N/A	N/A
O001	Octadecylamine	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
O002	Octadecylamine acetate	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
O003	Optisperse PO5068 (or	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 3 of 3):

Ref. Nº or Code	Material/ Substance ⁽²⁾	TA Luft Class 1, 2 or 3	Odour			EU Lists I and II (Tick and specify Group/Family Number)			
			Odorous Yes/No	Description	Threshold µg/m ³	Dangerous Substances Directive 76/464/EEC		Groundwater Directive 80/68/EEC	
						List I	List II +129 ⁽⁵⁾	List I	List II
	equivalent)								
O004	Oxygen	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
O005	d-2-Octanol	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
P001	Palladium / Carbon (5%)	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
P002	Palladium / Alumina (5%)			N/A					
P003	Peanut Oil	Not classified	Yes	Peanuts	N/A	N/A	N/A	N/A	N/A
P004	Pen V Amidase	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
P005	Perchloric Acid	Not classified	Yes	Pungent	N/A	N/A	N/A	N/A	N/A
P006	Phosphoric Acid (85%)	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	Y (5)
P007	Pivaloyl Chloride	Not classified	Yes	Sharp acidic odour	N/A	N/A	N/A	N/A	N/A
P008	Platinum / Carbon (5%)	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
P009	Polyelectrolyte	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
P010	Potassium Bicarbonate	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
P011	Potassium Carbonate	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
P012	Potassium Hydroxide	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
P013	Potassium Iodide	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
P014	Potassium Phosphate, dibasic	Not classified	N/A	N/A	N/A	N/A	Y (5)	N/A	Y (5)
P015	Potassium Phosphate, monobasic	Not classified	N/A	N/A	N/A	N/A	Y (5)	N/A	Y (5)
P016	L-Proline	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
P017	Propionyl Bromide	Not classified	Yes	Pungent	N/A	N/A	N/A	N/A	N/A
P018	Purified Water	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
P019	Pyridine	I	Yes	Disagreeable odour	0.23-1.9 ppm	N/A	N/A	N/A	N/A
P020	Pyridinium p-Toluene Sulfonate	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
P021	Palladium Chloride	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
P021	Phenylacetaldehyde	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
P022	Phosphorous oxychloride			N/A					
P023	Phosphorus pentoxide	Not classified	N/A	N/A	N/A	N/A	Y (5)	N/A	Y (5)
P024	Picryl Chloride	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
P025	Potassium Bromide	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 3 of 3):

Ref. Nº or Code	Material/ Substance ⁽²⁾	TA Luft Class 1, 2 or 3	Odour			EU Lists I and II (Tick and specify Group/Family Number)			
			Odorous Yes/No	Description	Threshold µg/m ³	Dangerous Substances Directive 76/464/EEC		Groundwater Directive 80/68/EEC	
						List I	List II +129 ⁽⁵⁾	List I	List II
P026	Potassium Hydrogen Phthalate	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
P027	Potassium Iodate	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
P028	Potassium Sulphate	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
P029	Potassium Dihydrogen phosphate	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
P030	Peracetic acid	Not classified	Yes	Slightly pungent	N/A	N/A	N/A	N/A	N/A
P031	(s)-(+)-1,2-propanediol	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
P032	Propylene oxide	N/A	N/A	N/A	N/A				
Q001	Quinaldine Red	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
R001	Resazurin tablets	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S001	Sodium Acetate	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S002	Sodium Bicarbonate	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S003	Sodium Bisulfate	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S004	Sodium Bisulfite	Not classified	Yes	Slight Sulphurous odour	N/A	N/A	N/A	N/A	N/A
S005	Sodium Borohydride	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S006	Sodium Bromate	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S007	Sodium Carbonate	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S008	Sodium Chloride	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S009	Sodium Dithionite	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S010	Sodium Ethyl Hexanoate	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S011	Sodium Hydroxide	Not classified	No	N/A	N/A	N/A	N/A	N/A	N/A
S012	Sodium Hypochlorite	Not classified	Yes	Bleach solution	N/A	N/A	N/A	N/A	N/A
S013	Sodium Metabisulfite	Not classified	Yes	Slight Sulphurous odour	N/A	N/A	N/A	N/A	N/A
S014	Sodium Phosphate monobasic	Not classified	N/A	N/A	N/A	N/A	Y (5)	N/A	Y (5)
S015	SQ 02,072	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S016	SQ 14224	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S017	SQ 14225	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S018	SQ 25670	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S019	SQ 26621	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S020	SQ 27616	Not classified	Yes	Not remarkable	N/A	N/A	N/A	N/A	N/A

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 3 of 3):

Ref. Nº or Code	Material/ Substance ⁽²⁾	TA Luft Class 1, 2 or 3	Odour			EU Lists I and II (Tick and specify Group/Family Number)			
			Odorous Yes/No	Description	Threshold µg/m ³	Dangerous Substances Directive 76/464/EEC		Groundwater Directive 80/68/EEC	
						List I	List II +129 ⁽⁵⁾	List I	List II
S021	SQ 28303	Not classified	No	N/A	N/A	N/A	N/A	N/A	N/A
S022	SQ 28355	Not classified	No	N/A	N/A	N/A	N/A	N/A	N/A
S023	SQ 28449	Not classified	Yes	Slight	N/A	N/A	N/A	N/A	N/A
S024	SQ 28555	Not classified	No	Virtually odourless	N/A	N/A	N/A	N/A	N/A
S025	SQ 28646	Not classified	No	N/A	N/A	N/A	N/A	N/A	N/A
S026	SQ 28796	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S027	SQ 29242	Not classified	Yes	Sweet	N/A	N/A	N/A	N/A	N/A
S028	SQ 29517	Not classified	No	N/A	N/A	N/A	N/A	N/A	N/A
S029	SQ 31175	Not classified	No	Virtually odourless	N/A	N/A	N/A	N/A	N/A
S030	SQ 32034	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S031	SQ 32035	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S032	SQ 35154	Not classified	No	N/A	N/A	N/A	N/A	N/A	N/A
S033	SR 47436 Crude	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S034	SR 47436 Pure	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S035	SR 47563	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S036	SR 47929	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S037	SR 48001A	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S038	SR 48941	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S039	Sulphuric Acid	Not classified	Yes	N/A	0.15	N/A	N/A	N/A	N/A
S040	Sulphuryl Chloride	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S041	Syltherm XLT	Not classified	N/A	Very little odour	N/A	N/A	N/A	N/A	N/A
S042	Selenium Powder black	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	Y (1)
S043	Silver Nitrate	Not classified	Yes	Characteristic	N/A	N/A	Y (1)	N/A	Y (1)
S044	tri-Sodium Citrate	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S045	Sodium Dihydrogen phosphate	Not classified	N/A	N/A	N/A	N/A	Y (5)	N/A	Y (5)
S046	Sodium ethoxide (21wt%)		N/A	N/A	N/A				
S047	Sodium Methoxide	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S048	Sodium Nitrite	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S049	Sodium Nitroprusside	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 3 of 3):

Ref. Nº or Code	Material/ Substance ⁽²⁾	TA Luft Class 1, 2 or 3	Odour			EU Lists I and II (Tick and specify Group/Family Number)			
			Odorous Yes/No	Description	Threshold µg/m ³	Dangerous Substances Directive 76/464/EEC		Groundwater Directive 80/68/EEC	
						List I	List II +129 ⁽⁵⁾	List I	List II
S050	Sodium Phosphate, dibasic anhydrous	Not classified	N/A	N/A	N/A	N/A	Y (5)	N/A	Y (5)
S051	Sodium Persulphate	Not classified	No	N/A	N/A	N/A	N/A	N/A	N/A
S052	Sulfamic acid	N/A	N/A	N/A	N/A	N/A	N/A		
T001	L-Tartaric acid	Not classified	Yes	Burnt sugar when melted	N/A	N/A	N/A	N/A	N/A
T002	Tetrabutylammonium bromide	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	Y (8)
T003	Tetrahydrofuran	II	Yes	Acetone-like	20-50 ppm	N/A	N/A	N/A	N/A
T004	Tetramethylethylenediamine	Not classified	Yes	Slight alcohol	N/A	N/A	N/A	N/A	N/A
T005	Thiobenzoic acid	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
T006	2-Thiophenesulfonyl chloride	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
T007	Thionyl Chloride	Not classified	Yes	Suffocating odour	N/A	N/A	N/A	N/A	N/A
T008	Toluene	II	Yes	Characteristic	2.14 ppm	N/A	N/A	N/A	N/A
T009	Tributyl methylammonium chloride, 75% in water	Not classified	N/A	N/A	N/A	N/A	Y (8)	N/A	Y (8)
T010	Tributylphosphine	Not classified	N/A	N/A	N/A	N/A	Y (5)	N/A	Y (5)
T011	Trichloroethane	I	Yes	Sweet, chloroform	N/A	N/A	N/A	N/A	N/A
T012	Triethylamine (TEA)	I	Yes	Characteristic fishlike or ammoniacal.	0.08 ppm	N/A	N/A	N/A	N/A
T013	Triethylorthoformate	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
T014	Triethylsilyl chloride	Not classified	Yes	Pungent	N/A	N/A	N/A	N/A	N/A
T015	Triethylsilane boron trifluoride-acetic acid complex	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
T016	Triethylzilonone	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
T017	Trifluoroacetic Acid	Not classified	Yes	Pungent	N/A	N/A	N/A	N/A	N/A
T018	Trifluoroacetic anhydride	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
T019	Trimethylene Chlorobromide	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
T020	Trimethyl orthoformate		N/A	N/A	N/A				
T021	Triphenylphosphine	Not classified	N/A	N/A	N/A	N/A	Y (5)	N/A	Y (5)

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 3 of 3):

Ref. Nº or Code	Material/ Substance ⁽²⁾	TA Luft Class 1, 2 or 3	Odour			EU Lists I and II (Tick and specify Group/Family Number)			
			Odorous Yes/No	Description	Threshold µg/m ³	Dangerous Substances Directive 76/464/EEC		Groundwater Directive 80/68/EEC	
						List I	List II +129 ⁽⁵⁾	List I	List II
T022	n-Tetradecane	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
T023	Thiobarbituric acid	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
T024	Thymol blue	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
T025	Tributylamine	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
T026	Trichloroacetyl chloride	Not classified	N/A	N/A	N/A	Y (1)	N/A	Y (1)	N/A
T027	Tetrabutylammonium hydrogen sulphate	Not classified	N/A	N/A	N/A	N/A	Y (5)	N/A	Y (5)
T028	Tetra-n-butylammonium Hydroxide	Not classified	N/A	N/A	N/A	N/A	Y (5)	N/A	Y (5)
U001	Urea	Not classified	Yes	Slightly ammoniacal	17 ppm as NH ₃	N/A	Y (8)	N/A	Y (8)
V001	Vanadium Pentoxide	Not classified	No	N/A	N/A	N/A	N/A	N/A	Y (1)
V002	Vilsmeier Reagent	Not classified	Yes	Acidic odour	N/A	N/A	N/A	N/A	N/A
W001	Water	Not classified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
X001	Xylene	II	Yes	Sweet	0.00005 ppm	N/A	N/A	N/A	N/A
Z001	Zero Air	Not classified	No	N/A	N/A	N/A	N/A	N/A	N/A
Z002	Zinc dust	Not classified	N/A	N/A	N/A	N/A	Y (1)	N/A	Y (1)
Z003	Zinc Bromide	Not classified	No	N/A	N/A	N/A	Y (1)	N/A	Y (1)

Notes (cont.): 5. The European Commission priority candidate list

Note: 1: EU Lists I and II: The following are the classifications referred to in the tables:

List I: 1 – Organohalogen compounds and substances which may form such compounds in the aquatic environment.

5 - Mercury and its compounds

7 - Persistent mineral oils and hydrocarbons of petroleum origin

8 - Persistent synthetic substances that may float, remain in suspension or sink and which may interfere with any use of the waters.

CCl4- Carbon Tetrachloride is listed in the daughter directive.

Details of Process related Raw Materials, Intermediates, Products, etc., used or generated on the site (Sheet 3 of 3):

- List II: 1 – The following metalloids and metals and their compounds: (for the purposes of this list)
Zinc, Selenium, Vanadium and Silver.
- 3 - Substances which have a deleterious effect on the taste and / or smell of the products for human consumption derived from the aquatic environment, and compounds liable to cause the formation of such substances in water
- 5 - Inorganic compounds of phosphorus and elemental phosphorus
- 8 - Substances which have an adverse effect on the oxygen balance, particularly ammonia, nitrites.

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