



July 2015

## ICMI RE-CERTIFICATION SUMMARY REPORT

# Chemours International Operations Sarl, Antwerp, Belgium

**Submitted to:**

International Cyanide Management Institute  
(ICMI)  
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UNITED STATES OF AMERICA

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REPORT

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## 1.0 SUMMARY AUDIT REPORT FOR CYANIDE PRODUCTION OPERATIONS

**Name of Cyanide Production Facility:** Chemours International Operations Sarl  
**Name of Facility Owner:** Chemours International Operations Sarl  
**Name of Facility Operator:** Chemours International Operations Sarl  
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## 2.0 LOCATION DETAIL AND DESCRIPTION OF OPERATION

### 2.1 Background and Site Location

#### 2.1.1 Supply Chain Overview

Chemours, recently de-merged from E.I. DuPont de Nemours and Company, Inc. (DuPont), is a science-based company operating in more than 70 countries. Chemours manufactures and serves market needs for Titanium Dioxide, Fluoropolymers, Fluorochemicals and other Chemicals.

Chemours (as part of DuPont) was one of the original 14 International Cyanide Management Code (ICMC) signatory companies announced on November 3, 2005. As such, DuPont made the commitment to obtain ICMC certification for its Memphis Solid Cyanide Plant and its warehouse operations. DuPont was the first cyanide producer in the world to achieve certification (June 2006) and it was re-certified in 2009 and again in 2013.

Chemours produces sodium cyanide for use in the gold mining sector at the Memphis, Tennessee plant in the United States of America. Chemours maintains several cyanide distribution terminals and delivers solid and liquid cyanide to mining customers throughout the world. Solid cyanide, distributed through the European Supply Chain and sold to gold mining customers, is packaged in 1 ton bag/box packaging and is stored at the VLS warehouse, prior to being distributed world-wide.

The Chemours European Supply Chain for sodium cyanide consists of the Chemours Customer Service, Logistics, and Product Stewardship personnel for Supply Chain Management, warehousing activities at a VLS-Group operated warehouse in the Port of Antwerp, Belgium, and emergency response, testing, and remediation services that are performed by SGS, a service provider located near the warehouse. The Site was originally certified (under the Du-Pont name in 2012). This report provides details of the re-certification audit as the demerged entity Chemours.

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All organizations and supply chain components (Chemours Antwerp Operations (European-based Customer Service, Logistics, and Distribution), VLS (warehousing in Antwerp), and SGS (emergency response services) were included in this ICMC Re-certification Audit. Each organization underwent a full on-site ICMC audit and was found to be in full compliance with ICMC requirements.

### 2.1.2 VLS-Group Warehouse Operation

The VLS-Group warehouse evaluated during this audit is located within the boundaries of the Port of Antwerp in Belgium. Previously part of the Royal Vopak organization, the VLS-Group was formed in 2003. VLS-Group operates nine warehouses in Europe and manages approximately 200,000 square meters of warehouse space. The VLS-Group specializes in the storage and handling of hazardous materials and warehouses with appropriate design parameters for numerous types of hazardous materials. Storage areas are constructed and operated in a way that ensures that incompatible materials are segregated, ventilation is appropriate, and that chemicals and potential spills are appropriately contained. The VLS warehouses have obtained environmental (Seveso) permits that enable them to store hazardous materials including sodium cyanide which is detailed in the permit.

The VLS warehouse receives truck and ocean shipments of solid sodium cyanide. Cyanide that is destined to gold mine customers is received in bag/box packaging in either dry van trailers or intermodal sea containers. The cyanide is unloaded by VLS employees and is stored in the covered well-ventilated warehouse prior to being distributed to customers. The cyanide packaging is not opened by VLS at any point during the operation.

Outward bound cyanide for shipping to gold mine customers is packed into intermodal containers by VLS personnel. The VLS material unloading, warehousing, and intermodal container loading operations were evaluated during this audit.

The warehouse is located within the Port of Antwerp boundaries and material handling personnel who work for the Port Authority move the intermodal containers to the shipping docks for ocean transport.

This audit has focused on VLS' Logiwell warehouse which is currently used to store all solid sodium cyanide and is planned to be used for this purpose in the future. However, VLS do hold environmental permits to store solid sodium cyanide at its other warehouses in the Port of Antwerp including Blauwhoef 1, 2 and 3, and Ecowell 1, 2 and 3.



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Figure 1: Logiwell Site Location Map

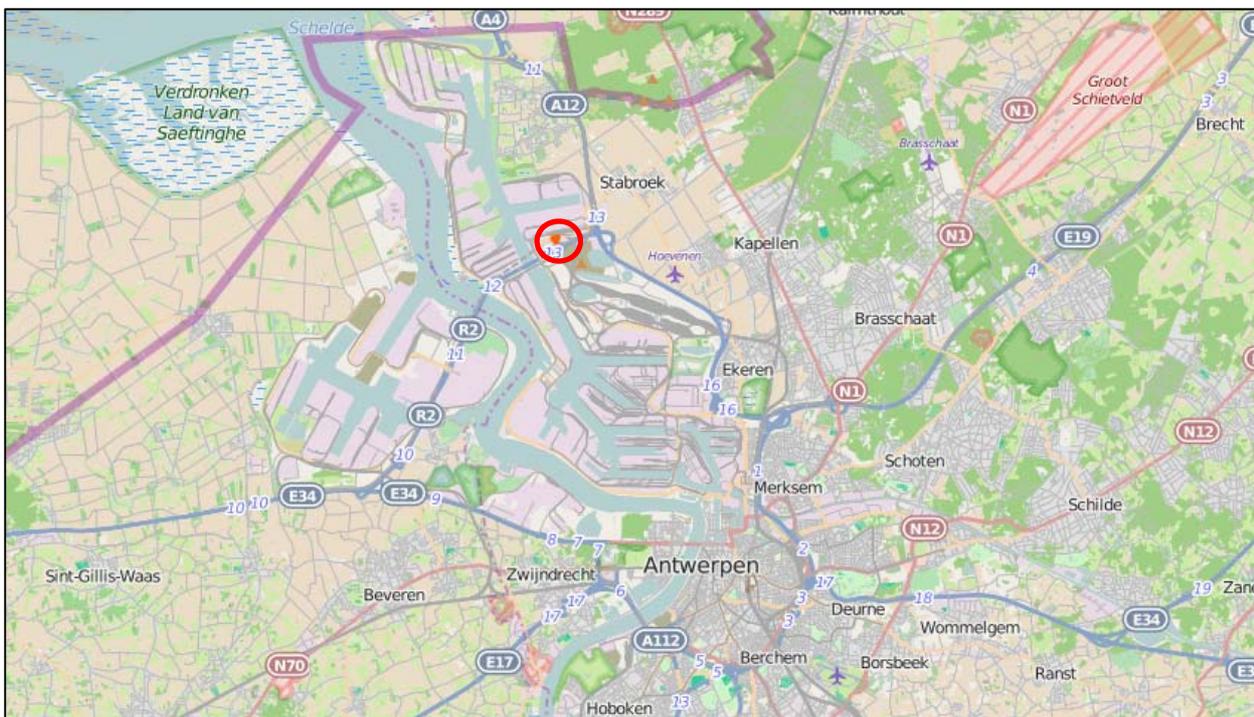


Figure 2: Regional Location Map

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*Daetjengh*  
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## SUMMARY AUDIT REPORT

### Auditors Findings

**Chemours is:**  in full compliance with **The International Cyanide Management Code**

in substantial compliance\* (see below) with **The International Cyanide Management Code**

not in compliance with **The International Cyanide Management Code**

This operation has maintained full compliance with the International Cyanide Management Code throughout the previous three- year audit cycle.

**Audit Company:** Golder Associates  
**Audit Team Leader:** Dale Haigh, Lead Auditor and Production Specialist  
**Email:** dhaigh@golder.com

### Dates of Audit

The Re-certification Production Audit was undertaken within three days (three person-days) between 29 June and 1 July 2015.

I attest that I meet the criteria for knowledge, experience and conflict of interest for Code Verification Audit Team Leader, established by the International Cyanide Management Institute and that all members of the audit team meet the applicable criteria established by the International Cyanide Management Institute for Code Verification Auditors.

I attest that this Summary Audit Report accurately describes the findings of the verification audit. I further attest that the verification audit was conducted in a professional manner in accordance with the International Cyanide Management Code Verification Protocol for Cyanide Transportation Operations and using standard and accepted practices for health, safety and environmental audits.

Chemours International Operations Sarl *Dale Haigh* 22 July 2015  
 Name of Facility Signature of Lead Auditor Date

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**PRINCIPLE 1 – OPERATIONS**

**Design, Construct and Operated Cyanide Production Facilities to Prevent Release of Cyanide**

**Operations Practice 1.1: Design and construct cyanide production facilities consistent with sound, accepted engineering practices and quality control/quality assurance procedures**

in full compliance with

The operation is

in substantial compliance with

**Operations Practice 1.1**

not in compliance with

**Summarise the basis for this Finding/Deficiencies Identified:**

The operation is in full compliance with Production Practice 1.1; design and construct cyanide production facilities consistent with sound, accepted engineering practices and quality control/quality assurance procedures.

The VLS Warehouse facility was built using sound, accepted engineering practices. Quality check or sign-offs obtained during the construction phase are not held by VLS; however, VLS was able to demonstrate that a third-party evaluation (countersigned by the Authorities) was performed by a Professional Engineer and that the warehouse was found to be suitable for cyanide storage. The report dates from 2005 and concluded that the construction was acceptable for a number of different types of chemicals with the specific inclusion of sodium cyanide. This information was accepted by the local authorities for the issuance of an operations and Seveso permit (High Tier) which includes the permission to store solid sodium cyanide. This was issued in 2007.

There are no cyanide solutions or process equipment at this facility instead the facility is used as a warehouse for solid sodium cyanide which is stored in sealed containers. The floor of the storage area is concrete which is 18 inches in thickness and underlain by a clay liner (bentomat). These materials are compatible with solid cyanide and potential spilled materials. Visual inspection during the site visit (June 2015) indicated that the concrete floor surface was in a good state of repair with no visual defects.

There are no material feed systems or other mechanical systems in use to move the solid sodium cyanide. The packages are not opened.

Storm water drains in the warehouse leads to a collection sump that can be shut-off in the event of a fire and the use of a sprinkler system. The warehouse has appropriate containment systems that ensure full containment with sufficient storage capacity in case of a storm event. No cyanide solutions are processed or packaged at this facility. The emergency shut-off valve for the protection of storm water is tested by the site.

**Operations Practice 1.2: Develop and implement plans and procedures to operate cyanide production facilities in a manner that prevents accidental releases.**

in full compliance with

The operation is

in substantial compliance with

**Operations Practice 1.2**

not in compliance with



### Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Production Practice 1.2; develop and implement plans and procedures to operate cyanide production facilities in a manner that prevents accidental releases.

Standard operating procedures and work instructions are maintained for the VLS operation. The procedures are well-organized (within a Lotus Notes system) and were available for review during the audit. The procedures were found to be appropriate for ensuring environmentally sound operation of the facility.

VLS maintains an emergency procedure for each warehouse that describes what should be done in case of a material spill. Procedures are also maintained to address emergency situations involving human exposure scenarios. There was clear evidence that the VLS emergency procedure had been developed and revised during the past three years.

SGS, the emergency response organization contracted to respond to chemical spills maintains an emergency plan specifically for the response actions that would be required in the event of a release of sodium cyanide at the VLS warehouse. Operations personnel and emergency response personnel were interviewed and their awareness level of emergency and contingency procedures was high.

Operating procedures are formally maintained, reviewed at regular frequencies, and approved prior to use. VLS maintains an integrated Safety, Health, Environment, and Quality (SHEQ) management system that is certified to ISO 9001. Each procedure is reviewed on a periodic basis and VLS keeps a record of when each procedure requires the next review. The system has also been assessed by the European Chemical Industry (CEFIC) according to the Safety and Quality Assessment Systems (SQAS) program. The appropriate control of operating procedures and the management of change of operating processes is audited at least annually by third-party management system auditors as part of the certification programs to which the VLS-Group subscribes.

As the site is a warehouse used only to store solid sodium cyanide in sealed containers, the only equipment used at this site is forklift trucks. Records showed that required maintenance is being completed as planned.

Environmental Plans are in place to prevent unauthorized/unregulated discharge to the environment of any cyanide-containing water. Storm water drains in the warehouse and in the truck unloading/loading area leads to a collection sump that would initially be shut off to ensure containment.

Waste from clean-up activities following a packaging breach would be decontaminated and disposed of by the emergency response company SGS. SGS maintains procedures for the decontamination and disposal of contaminated solids. All disposal is done in accordance with EU regulations.

The storage facility is continuously ventilated. Air vents are installed in the walls and roof of the warehouse. Ventilation was found to be appropriate in all storage areas.

There is no storage of cyanide outside of the roofed storage area. Loading and unloading is performed under the roofed portion of the loading dock. This practice helps to ensure that the potential for cyanide being exposed to moisture is minimized. Additionally, the solid sodium cyanide is stored in water-tight packaging and the packages are not opened at this facility.

The perimeter of the facility is fenced, the gate is locked and the premises monitored (CCTV) at all times. The warehouse is within the boundaries of the Port of Antwerp and the area is not accessible to the public.

The cyanide producer controls the labelling and packing specifications for all products. Processes exist within the Chemours Corporation to ensure that packaging and labelling are appropriate for the jurisdictions through which the load will pass. All documentation is also reviewed and verified as appropriate by the Port of Antwerp Customs before shipping is allowed.

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The languages printed on the containers, for example, appear in English, the language of the destination country, and in six standard European languages. All packages and containers observed during the audit had appropriate packaging and labelling.

**Operations Practice 1.3: Inspect cyanide production facilities to ensure their integrity and prevent accidental releases.**

in full compliance with

The operation is

in substantial compliance with

**Operations Practice 1.3**

not in compliance with

**Summarise the basis for this Finding/Deficiencies Identified:**

The operation is in full compliance with Production Practice 1.3; inspect cyanide production facilities to ensure their integrity and prevent accidental releases.

This location only stores and handles solid sodium cyanide. There are no cyanide solution tanks or process solution tanks or piping at this facility.

Interviews confirmed that all secondary containment areas are appropriate for the operation and are in excellent condition.

Monthly safety inspections of the facility are conducted by the HHSEQ Manager. Records of these inspections were reviewed during the audit and were found to be appropriate. Containment systems are monitored as part of the facility maintenance program.

Records showed a checklist of items that are inspected, the name of the inspector, and any observed deficiencies. Actions taken in response to problems in the field were clearly documented in the records. These records (demonstrating inspection and follow up action) were shown to be in place for at least the past three years.

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PRINCIPLE 2 – WORKER SAFETY

Protect Workers’ Health and Safety from Exposure to Cyanide

Worker Safety

Practice 2.1: Develop and implement procedures to protect plant personnel from exposure to cyanide.

in full compliance with

The operation is  in substantial compliance with Worker Safety Practice 2.1

not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Production Practice 2.1; develop and implement procedures to protect plant personnel from exposure to cyanide.

Worker exposure to cyanide is minimized through the safe operation of the facility, the provision of training to provide good awareness and through the use of personal protective equipment (PPE).

The minimum PPE requirements are defined in the Standard Operating Procedures and Emergency Procedures, which were reviewed during the audit.

Appropriate use of PPE was observed in all areas of the operation. All cyanide packaging is sealed. In the event that a package breaks open or is found to have spilled, workers block off the area and call the emergency response company, SGS. VLS workers do not clean up any spilled cyanide, regardless of the quantity. This practice was confirmed through interviews with the warehouse material operators and SGS personnel.

Non-routine and emergency operations are performed by trained SGS personnel wearing appropriate PPE. Emergency procedures are defined in the site Emergency Response Plan maintained at VLS and at SGS. Warehouse employees showed good awareness of PPE requirements and emergency response requirements.

There is no process equipment at this facility which is used as a warehouse to store solid sodium cyanide in sealed containers. General PPE requirements for all areas in which cyanide may be present are clearly defined and are well understood by all VLS personnel interviewed.

The VLS Safety, Health, Environment, and Quality (SHEQ) management system is used to manage proposed operational changes. The SSHEQ Manager reviews all proposed operational and facility changes to ensure that operations continue to be in compliance with the law and protective of human health and the environment.

Employee involvement is achieved through employee attendance at monthly Safety Meetings. During the monthly inspections by the SSHEQ Manager employees also provide feedback which is recorded. Employee participation in the development and maintenance of safety practices was found to be acceptable.

There are no areas where cyanide gas or dust can be generated during normal operations. In the event of an emergency, external emergency responders (SGS) would be called in immediately. This practice was confirmed through interview.

No hydrogen cyanide monitoring equipment is used by VLS. Calibration records for monitoring equipment used by SGS (the emergency responders) were found to be acceptable.

The buddy system is used for all tasks by VLS and SGS. Employees have radios and access to Management, Security, and Emergency Response Personnel at all times.

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Employees' health is evaluated upon hire and annually thereafter. Health exams are used to evaluate the employee general health and confirm fitness for duty by an external Doctor (Mediwet).

The general worker safety policy is that work overalls, gloves, and shoes are to be left in the changing room at the warehouse and are not to be taken home.

Access to cyanide storage areas is limited to trained personnel. Warning and PPE signs are posted in appropriate locations. All sodium cyanide packages were clearly marked with appropriate labelling and placards. Safety Data Sheets are also provided in this location.

Eating, drinking, smoking and open flames are prohibited where there is a potential for cyanide contamination. Employees showed good awareness of the restrictions and of the potential dangers of not following the rules. Eating is allowed in designated areas and in offices outside of the warehouse. Smoking is restricted to a designated smoking area.

There was good evidence from records and for interviews with VLS and SGS staff that the above practices had been followed for at least the past three years.

### Worker Safety

**Practice 2.2: Develop and implement plans and procedures for rapid and effective response to cyanide exposure.**

in full compliance with

The operation is

in substantial compliance with

**Worker Safety Practice 2.2**

not in compliance with

### Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Production Practice 2.2; develop and implement plans and procedures for rapid and effective response to cyanide exposure.

VLS (and SGS) have developed Emergency Response Plans and procedures for rapid and effective response to cyanide exposure. The procedure for treatment of cyanide exposure is available for a medical emergency responder and the antidote response kit was appropriately stored. The VLS emergency response plan was last updated on 16 June 2015. Additionally, SGS maintains procedures and antidote in the event that there is a human exposure to cyanide during an emergency response event. Their procedure has also been reviewed and updated during the past three years.

Commercially supplied combination shower/low-pressure eye wash stations and ABC-type fire extinguishers are located at the facility. These are checked monthly and records kept.

The facility has water, oxygen, resuscitator, antidote and a means of communication readily available at the facility. Emergency equipment is inspected on a monthly basis. SGS has similar equipment which they check approximately monthly.

VLS and SGS appropriately maintain emergency response equipment and antidote to ensure their availability during an emergency. Recent records of equipment inspections were reviewed for both companies. Antidote is stored in locations that maintain an appropriate temperature. The medicine is also stored in a manner that protects it from moisture and from light, as recommended by the manufacturer. Emergency response equipment is stored and tested according to manufacturer's recommendations.

Safety Data Sheets and first aid procedures are available to workers in operational areas. Safety procedures that describe how to respond to a cyanide exposure and how to use the medical kit were available. Interviews and documentation indicate that these have been reviewed during the past three years.

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Cyanide safety training is given annually and employees demonstrated a good understanding of the decontamination policy and the need for safety precautions. Warehouse storage operations are unlikely to give rise to skin exposure to cyanide. Safety training and procedures of the facility were found to be acceptable.

All medical treatment would be done by a licensed physician. The site maintains a medical response kit with instructions for use. The medical kit would be given to the doctor or taken to the hospital with an exposure victim to ensure availability of appropriate supplies to medical responders.

Trained medical emergency response personnel are readily available at the Port of Antwerp to transport an exposure victim to a qualified medical facility. The auditor concluded that there is no need for additional procedures to be developed by the facility.

The Doctor who is responsible for medical exams and treatment in the event of an emergency visits the facility annually. The Doctor monitors all employees specifically involved in cyanide activities on an annual basis.

Emergency response drills are conducted annually by SGS and VLS. Spill and exposure scenarios tested were deemed to be appropriate for the operation.

VLS and SGS have documented investigation and reporting requirements for any safety or environmental incident. According to interviews and review of documentation, procedures and practices are extensively reviewed in the event of an incident.

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### PRINCIPLE 3 – MONITORING

#### Ensure that Process Controls are Protective of the Environment.

**Monitoring Practice 3.1:** Conduct environmental monitoring to confirm that planned or unplanned releases of cyanide do not result in adverse impacts.

in full compliance with

The operation is

in substantial compliance with

**Monitoring Practice 3.1**

not in compliance with

**Summarise the basis for this Finding/Deficiencies Identified:**

The operation is in full compliance with Production Practice 3.1; conduct environmental monitoring to confirm that planned or unplanned releases of cyanide do not result in adverse impacts.

Only solid sodium cyanide is stored inside the warehouse in sealed containers and the containers are not opened.

There has been no seepage from the facility. The facility does not have a direct or indirect discharge to surface water, groundwater or air and so this part of the ICMC is not applicable to the VLS facility.

The facility does not have any requirements or demonstrated need to perform environmental monitoring and nor is any required by the environmental (Seveso) permit. This part of the ICMC is therefore considered not to be applicable at this time.



PRINCIPLE 4 – TRAINING

Train Workers and Emergency Response Personnel to Manage Cyanide in a Safe and Environmentally Protective Manner

Training Practice 4.1: Train employees to operate the plant in a manner that minimizes the potential for cyanide exposures and releases.

[X] in full compliance with

The operation is

[ ] in substantial compliance with

Training Practice 4.1

[ ] not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Production Practice 4.1; train employees to operate the plant in a manner that minimizes the potential for cyanide exposures and releases.

VLS and SGS both have formal training programs that include safety training for the handling of hazardous materials prior to the start of work and periodic refresher training on all procedures. The training program discusses chemical hazards and safety precautions. VLS and SGS employees also received additional training and training materials from Chemours, approximately every three years.

VLS and SGS personnel are also trained in the use of personal protective equipment as part of the safety training and again during the on-the-job training.

VLS employees are trained to perform normal operation tasks to reduce risks to personal safety and the environment. Awareness of procedural requirements was evaluated through interviews and observation. Employees displayed effective awareness of procedural and practical requirements for both normal and upset operating conditions.

All personnel are trained on all of the operating and safety procedures. Specialized training is also provided (e.g. fork lift truck, self-contained breathing apparatus) in order to perform their jobs safely.

Experienced and qualified personnel provide the safety and operations training. Interviews indicated that the cyanide-specific training at VLS is given by Chemours and the general safety training is given by the VLS SSHEQ Manager. SGS training is conducted internally by hazardous material experts.

All workers are trained prior to being allowed to work with cyanide. Each new employee is also monitored very closely prior to being allowed to complete tasks unsupervised. Training effectiveness is evaluated through testing following training and through observation of on-the-job performance by a qualified person.

Training Practice 4.2: Train employees to respond to cyanide exposures and releases.

[X] in full compliance with

The operation is

[ ] in substantial compliance with

Training Practice 4.2

[ ] not in compliance with





**Summarise the basis for this Finding/Deficiencies Identified:**

The operation is in full compliance with Production Practice 4.2; train employees to respond to cyanide exposures and releases.

VLS and SGS provide training to personnel on emergency response procedures and on what to do if a cyanide release is discovered. This is done as part of the regular safety training and specific emergency response training on the emergency response plan. Interviews with both SGS and VLS personnel indicated effective awareness of procedures.

Mock drills and/or evacuation tests are conducted annually by VLS to test general response to chemical emergencies, including chemical exposure as well as the ability of employees to leave an area once the alarm is sounded. These are reviewed and emergency procedures revised as necessary.

Training records are maintained for at least as long as the employee is working at the site. Training records were found to be detailed and demonstrated the type, level and contents of training provided along with indications of understanding.



PRINCIPLE 5 – EMERGENCY RESPONSE

Protect Communities and the Environment through the Development of Emergency Response Strategies and Capabilities.

Emergency Response

Practice 5.1: Prepare detailed emergency response plans for potential cyanide releases.

[X] in full compliance with

The operation is [ ] in substantial compliance with Emergency Response Practice 5.1

[ ] not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in full compliance with Production Practice 5.1; prepare detailed emergency response plans for potential cyanide releases.

Emergency response services are provided by SGS. Although VLS has an emergency response plan in place to respond to potential releases of cyanide, the plan only calls for VLS employees to evacuate the area and call SGS in the event of an incident. The answers to the questions in this part of the ICMI protocol are combined for the VLS warehouse and the SGS emergency response services that are part of this Supply Chain.

VLS maintains emergency response plans for the warehouse building, as required by their operating permits. The emergency response plan for the building used to store sodium cyanide was last updated in June 2015 and has been updated approximately annually during the past three years.

SGS maintains an emergency response plan entitled "SHE Plan for UN 1689 (Cyanides)" that was last revised in June 2015. The plan is specific to the provision of emergency response services in the event of a sodium cyanide spill at the VLS warehouse or in the Port of Antwerp.

The SGS SHE Plan for UN 1689 and VLS emergency response procedures were reviewed. The procedures address plausible scenarios for storage of solid sodium cyanide at an enclosed warehouse and were found to be appropriate for the operation. The emergency response plan and detailed support procedures for managing emergency situations fulfil ICMC Emergency Response Plan requirements.

Part of the evaluation procedure to identify the source of the spill and provide containment and remediation.

According to the emergency response plans and interviews, the cyanide antidote can only be administered by a trained Doctor, who is readily available at the Port at all times. VLS maintains records that show that the Doctor has been appropriately informed and involved in emergency planning for the warehouse.

Emergency Response

Practice 5.2: Involve site personnel and stakeholders in the planning process.

[X] in full compliance with

The operation is [ ] in substantial compliance with Emergency Response Practice 5.2

[ ] not in compliance with





**Summarise the basis for this Finding/Deficiencies Identified:**

The operation is in full compliance with Production Practice 5.2; involve site personnel and stakeholders in the planning process.

SGS and VLS hold monthly safety meetings with its personnel. During these meetings employees may also discuss the emergency planning process. The risks and risk mitigation steps to be taken for relevant scenarios me be discussed during such meetings.

The VLS warehouse is located in an industrial Port (Port of Antwerp) and only solid sodium cyanide is stored at this warehouse. VLS and SGS were able to demonstrate through interview and through communication records that they are in regular contact with Port and external emergency responders (e.g. fire brigade). The local fire brigade have attended site in a mock drill exercise and have been made aware of other emergency evacuation drills at the site.

Each time the VLS emergency plan is reviewed they will contact stakeholders to ensure that correct contact details are provided (These stakeholders include CGCLR (Belgium Internal Affairs), Milieu Antwerp, ACR (Labour Inspection), Antwerp Port Authority, CIWA, Fire Brigade and Doctors).

VLS involves its workforce in the emergency response planning process through monthly safety meetings, during training and during monthly inspections when issues raised by employees are reported by the SSHEQ Manager.

Additionally, the SGS SHE Plan for UN 1689 emergency response calls for a reassessment of Plan including its current conditions and risks, each time the plan is used and on an annual basis. The plan was reportedly last updated in June 2015. Updates to the Plan involve liaison with VLS and Chemours.

Site environmental permits (Seveso) to operate the site were issued with solid cyanide specifically mentioned, which was further evidence that local communities are aware of the presence of cyanide being stored in the warehouse.

Interviews with VLS and SGS indicated that the Doctor who may be required to administer a cyanide antidote in the event of an incident has also been made aware of need to provide cyanide antidote.

Coordination of roles and responsibilities between SGS and VLS personnel was evaluated during meetings held with personnel from each organization. A meeting held in June 2015 for example clarified individual responsibilities for VLS and SGS staff.

**Emergency Response**

**Practice 5.3:**

**Designate appropriate personnel and commit necessary equipment and resources for emergency response.**

in full compliance with

**The operation is**

in substantial compliance with

**Emergency Response Practice 5.3**

not in compliance with

**Summarise the basis for this Finding/Deficiencies Identified:**

The operation is in full compliance with Production Practice 5.3; designate appropriate personnel and commit necessary equipment and resources for emergency response.

Primary Emergency Response Teams are identified and alternate coordinators are identified in the emergency procedures for VLS and SGS.

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The emergency response plan clearly designates full responsibility, authority, and duties for managing an emergency situation. Call-out procedures including 24-hour contact information for coordinators and response team members are included in the emergency planning documentation. Training for emergency responders was found to be appropriate for both VLS and SGS. SGS personnel also receive additional training for responding to emergency situations at customer sites. Coordination of roles and responsibilities between SGS and VLS personnel was evaluated during this audit. Awareness of roles and responsibilities appeared effective.

Lists of necessary emergency response equipment are contained within the emergency planning documentation. SGS maintains an extensive supply of emergency response equipment in mobile units that can be deployed to a customer site. The equipment is regularly maintained and inspected. Frequencies for equipment inspections are defined and records showed that all equipment identified as necessary for cyanide spill response was available in the mobile unit and had been inspected at approximately monthly intervals. Detailed checklists showing each piece of emergency response equipment are used to perform the inspections.

The processes for maintaining emergency equipment is also addressed in the VLS emergency response plan. Emergency equipment is checked at least monthly. Records and interviews during the VLS confirmed this practice.

**Emergency Response**

**Practice 5.4:**

**Develop procedures for internal and external emergency notification and reporting.**

in full compliance with

**The operation is**

in substantial compliance with

**Emergency Response Practice 5.5**

not in compliance with

**Summarise the basis for this Finding/Deficiencies Identified:**

The operation is in full compliance with Production Practice 5.4; develop procedures for internal and external emergency notification and reporting.

The notification procedures, including internal and external telephone numbers, are described in the emergency response procedures for both SGS and VLS. Notification numbers are checked annually.

Extensive notification information is also contained in the Chemours "Cyanides Global Response Plan for Off-Site Incidents."

For on-site emergencies at VLS, notifications are made to SGS emergency responders and to personnel within Chemours. Chemours maintains contact with the Media in the event of an incident.

**Emergency Response**

**Practice 5.5:**

**Incorporate into response plans and remediation measures monitoring elements that account for the additional hazards of using cyanide treatment chemicals.**

in full compliance with

**The operation is**

in substantial compliance with

**Emergency Response Practice 5.2**

not in compliance with

Chemours International Operations Sarl  
Name of Facility

Signature of Lead Auditor

22 July 2015  
Date





**Summarise the basis for this Finding/Deficiencies Identified:**

The operation is in full compliance with Production Practice 5.5; incorporate into response plans and remediation measures monitoring elements that account for the additional hazards of using cyanide treatment chemicals.

SGS maintains detailed procedures for the collection of samples for subsequent testing of potentially contaminated solids, the decontamination of solids, and the disposal of any waste following the remediation of a spill. In addition, they also have measures for monitoring of cyanide gas. Staff interviewed indicated the measures to be undertaken and the equipment to be used which was also inspected during the SGS Site visit. Typical measures noted include re-packing of solid sodium cyanide containers; re-packing as waste of any spilled solid sodium cyanide residues; containing solid sodium cyanide spills using plastic sheet covers and the use of absorbent materials for capturing liquid wastes.

Only solid sodium cyanide is stored inside this warehouse. No cyanide solution is handled at this location and it is highly improbable that a spill of solid sodium cyanide onto concrete would result in a release requiring environmental monitoring as any spill would most likely be contained within the warehouse. VLS do not therefore carry out any routine monitoring.

SGS provides Chemours and VLS with a range of emergency response and remediation services that include sampling/testing and environmental monitoring, when required. SGS have sampling strategies for spilled materials that can be collected for subsequent chemical analysis. SGS also have air monitoring equipment including Draeger tubes and a miniRae photoionisation detector (PID) detector which are provided to their response staff.

Interviews with VLS, SGS and Chemours personnel showed a high level of awareness that the use of treatment chemicals is prohibited if cyanide spills into surface waters. Note that this is an unlikely scenario given that this facility stores solid sodium cyanide in an enclosed warehouse within sealed containers.

SGS personnel noted, however, that the use of any chemical treatment methods for spills into the waterways is strictly prohibited and that only authorized external responders from the Port of Antwerp are allowed to respond to a chemical spill that involves a spill into surface water.

The Chemours emergency response plan prohibits the use of treatment chemicals such as sodium hypochlorite, ferrous sulfate and hydrogen peroxide if cyanide spills into surface waters.

**Emergency Response**

**Practice 5.6: Periodically evaluate response procedures and capabilities and revise them as needed.**

in full compliance with

**The operation is**  in substantial compliance with **Emergency Response Practice 5.6**

not in compliance with

**Summarise the basis for this Finding/Deficiencies Identified:**

The operation is in full compliance with Production Practice 5.6; periodically evaluate response procedures and capabilities and revise them as needed.

Both the VLS and SGS emergency procedures are reviewed annually to keep the plans up-to-date and confirm that the plans continue to be appropriate for the operation.

SGS and VLS have performed internal emergency evacuation drills and/or mock drills on an approximately annual basis.

Chemours International Operations Sarl  
Name of Facility

*Deaton*  
Signature of Lead Auditor

22 July 2015  
Date





## ICMI RE-CERTIFICATION SUMMARY REPORT

Full incident investigations are conducted by SGS in the event that an actual emergency occurs. Records were available to demonstrate this practice for other activities including at the VLS facility. However, no such incidents with cyanide have occurred during the past three years.

However, SGS emergency response staff have been involved in mock/real drills including:

- Real incident involving inspection and repacking of a flammable solid container at the VLS facility on 13 January 2015;
- 23 October 2014 (Release of gas to air);
- 26 November 2012 (real incident with follow up) due to reaction in IBC.

These activities have also been used to update SGS emergency plans.

Chemours International Operations Sarl  
Name of Facility

  
Signature of Lead Auditor

22 July 2015  
Date



## Report Signature Page

### GOLDER ASSOCIATES (UK) LTD

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Reviewer

Date: 22 July 2015

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