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**International Cyanide Management Code**



**Re-Certification Audit of:**

**Víctor Masson Transportes Cruz del Sur S.A.  
Sodium Cyanide Solution Transportation Operations**

**Summary Audit Report**

**Submitted to:  
The International Cyanide Management Institute  
1400 I Street, NW – Suite 550  
Washington, DC 20005  
USA**

*2016 Audit Cycle*



# Cruz del Sur Cyanide Transportation Operation Summary

## *Company Names & Contact Information*

<b>Name and Location of Operation:</b>	Víctor Masson Transportes Cruz del Sur S.A. Autopista Ricchieri y Boulogne Sur Mer, Nave D3, Tapiales, Mercado Central de Buenos Aires, Provincia de Buenos Aires, Argentina
<b>Name and contact information for Company Contact:</b>	Carlos Cafora Process Management Manager Víctor Masson Transportes Cruz del Sur S.A. T (011) 4480-6666 Int. 1320   C (011) 15 5657 4417   N 54*233*5568   Email: <a href="mailto:ccafora@cruzdelsur.com">ccafora@cruzdelsur.com</a>

## *Operational Overview*

Víctor Masson Transportes Cruz del Sur S.A. (Cruz del Sur) is a sodium cyanide transporter in Argentina. Cruz del Sur transports solid cyanide in containers to mines in Argentina. Cruz del Sur receives sealed containers with cyanide at ports in Argentina and Chile. Ports are included in the Chemours Global Ocean Supply Chain ICMC certification. Cruz del Sur responsibility starts when the Port Authority releases the container by placing it on a Cruz del Sur's platform. The cyanide is transported directly to the mine, without the use of secondary storage facilities.

## *Audit Implementation and Conclusions*

This audit was comprised of the ground transportation operations from the moment the Port Authority releases the cyanide to its delivery to the client's facility. Cruz del Sur was first certified in 2010 and re-certified in 2014. Records were reviewed from the date of the previous audit to November 2016.

Cruz del Sur transports cyanide produced by Chemours. Cyanide is packaged by the producers in a super-sack within a polyethylene bag to protect the material from water and humidity and placed in a wooden box. No less than 20 boxes are placed in standard 20-foot shipping container. An exact number of boxes are placed to prevent lateral movement in the container. In addition,

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blocking and bracing is applied to the cargo. The manufacturers seal the container with a tag with a serial number at the production facility to prevent material losses. These seals are only removed at the mine.

The Cruz del Sur cyanide transportation re-certification audit was performed by an independent third-party auditor who is pre-approved by the ICMI as Lead Auditor for all types of International Cyanide Management Code (ICMC) audits and as a technical expert for ICMC audits of cyanide transportation and production operations.

All aspects of the cyanide operations in its pre-operational state noted above were included in this ICMC Transportation Re-Certification Audit. The operation was found to be in FULL COMPLIANCE with ICMC Cyanide Transportation requirements.

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<u>Cruz del Sur Cyanide Transportation Operation</u>	<u><i>Bruno Rojas</i></u>	<u>December 14, 2016</u>
Name of Operation	Lead Auditor	Date

## Auditor's Finding

The cyanide management practices for Cruz del Sur transportation were evaluated for ICMC compliance using the *ICMI Cyanide Transportation Verification Protocol*. Cruz del Sur's internal standards, policies, practices, and procedures regarding the transportation of cyanide were reviewed.

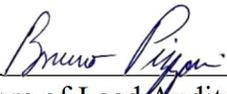
The auditor found that the overall level of preparedness and understanding of ICMI Cyanide Code requirements was excellent. Management systems upon which the operation is based were found to be very mature and personnel demonstrated excellent operational discipline. This operation has not experienced any cyanide incidents or compliance problems during the previous three-year audit cycle.

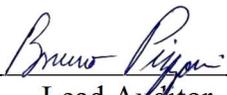
The results of this operational certification audit demonstrate that the Víctor Masson Transportes Cruz del Sur S.A. transportation company and all cyanide-related operations are in FULL COMPLIANCE with International Cyanide Management Code operational requirements.

Audit Company:	MSS Code Certification Service, A Division of Management System Solutions, Inc. <a href="http://www.mss-team.com">www.mss-team.com</a>
Audit Team Leader and Technical Expert:	Bruno Pizzorni E-mail: <a href="mailto:bpizzorni@mss-team.com">bpizzorni@mss-team.com</a>
Date(s) of Audit:	November 15 – 17, 2016

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 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.

Victor Masson Transportes Cuz del Sur S.A.		December 14, 2016
Name of Operation	Signature of Lead Auditor	Date

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## Cruz del Sur Transportation Certification Audit Results

**1. TRANSPORT:** *Transport cyanide in a manner that minimizes the potential for accidents and releases.*

Transport Practice 1.1: *Select cyanide transport routes to minimize the potential for accidents and releases.*

The operation is  in full compliance with  
 in substantial compliance with Transport Practice 1.1  
 not in compliance with

*Summarize the basis for this Finding:*

Cruz del Sur maintains a documented route selection process that considers population density, infrastructure, pitch & grade, proximity to water bodies, and the prevalence and likelihood of poor weather resulting in poor driving conditions. Chemours and Cruz del Sur personnel work together with mining customers to determine the safest and best route for transport. The routes are evaluated prior to first delivery and again formally thereafter.

Drivers report to Cruz del Sur managers when they return to the Terminal. Interviews with drivers and management were used to confirm that feedback about driving conditions is communicated daily, as needed. Special conditions reported by customers are noted and communicated to all drivers assigned to the route.

Risks such as pitch and grade of roads, traffic congestion, social unrest, and proximity to water bodies were considered during the development of the routes. In some cases, the pitch and grade of the roads are significant and transit through cities is lower risk. Stakeholder input (Chemours, mine customers, and local authorities) is considered when routes are determined. Records were available to show that Chemours and Cruz del Sur participate in community meetings together with their mining customers each year. The results of these community meetings are used in the overall cyanide delivery planning processes.

Appropriate risk mitigation measures are used. Transport procedures establish the additional safety and security measures that are to be used for all shipments from the port to the mines. Confirmation was made through interview that employees were very aware of the additional security requirements for these routes and that additional security measures are consistently used. Weather conditions are constantly monitored and deliveries are postponed if a route is unsafe. Drivers are

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empowered to stop a delivery if the conditions are unsafe. Interviews were used to confirm that drivers adhere to designated routes and request authorization prior to deviating from the established routes.

Chemours coordinates emergency response for cyanide deliveries made by Cruz del Sur. Chemours stakeholder interactions were audited as part of their ICMC 2016 re-certification audit and were also found to be acceptable.

Cruz del Sur drivers are employees and tractors are owned by Cruz del Sur. No subcontractors are used.

*Transport Practice 1.2: Ensure that personnel operating cyanide handling and transport equipment can perform their jobs with minimum risk to communities and the environment.*

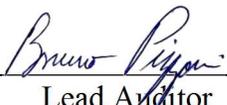
The operation is  in full compliance with  
 in substantial compliance with Transport Practice 1.2  
 not in compliance with

*Summarize the basis for this Finding:*

Training records from 2014, 2015, and 2016 as well as interviews with drivers, dispatch, management, and maintenance personnel were used to confirm that personnel operating cyanide transportation equipment can perform their jobs safely and appropriately. Training related to cyanide and the delivery of cyanide is given periodically in formal classroom sessions and via computer based programs.

Regulatory training and qualification requirements were fulfilled for all drivers. Cruz del Sur training management processes ensure that driver training is up-to-date. Drivers showed very good awareness that would help mitigate the risk of having a cyanide release during an unplanned event. No cyanide handling equipment is used by Cruz del Sur.

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Transport Practice 1.3:      *Ensure that transport equipment is suitable for the cyanide shipment.*

The operation is                       in full compliance with  
                                                   in substantial compliance with      Transport Practice 1.3  
                                                   not in compliance with

*Summarize the basis for this Finding:*

Cruz del Sur equipment was found to be in excellent condition and was deemed suitable for delivering solid cyanide in containers. The tractors and trailers are appropriate to ensure safe travel to the mine sites. Tires are replaced on a frequent basis and regular maintenance activities and inspections are conducted. The Cruz del Sur fleet is only made up of equipment that meets load requirements. Loading of the trucks is done by the port operator.

Transport Practice 1.4:      *Develop and implement a safety program for transport of cyanide.*

The operation is                       in full compliance with  
                                                   in substantial compliance with      Transport Practice 1.4  
                                                   not in compliance with

*Summarize the basis for this Finding:*

Cruz del Sur has a formal safety program that clearly addresses all ICMC safety program requirements. Procedures are in place to ensure that the integrity of the packaging is maintained. Sea containers are packed, blocked, and braced by Chemours at the point of manufacture. The sea containers are sealed and remain unopened until arrival at the mines. Packaging is preserved and load shifting is prevented through the use of the blocking and bracing in the sea container and the use of pins that secure the sea container to the truck chassis. Appropriate placards showing UN 1689 (solid cyanide) are displayed on all four sides of the sea containers. Drivers visually inspect the containers prior to each movement. Vehicle inspections are done prior to every shipment and maintenance is performed every 80,000 km. Maintenance records were found to be complete. Driver hours are limited according to local regulations. Cruz del Sur limits cyanide transport to day light hours and carefully monitors and audits driver hours for compliance with the organization.

Interviews were conducted with drivers and procedures were reviewed during the audit to confirm that drivers and the convoy leader are empowered to modify or suspend a shipment if unsafe conditions exist. Such a change in delivery plans would be done in close coordination with the Cruz del Sur dispatcher, Chemours personnel, and with the mining customer. Alcohol testing is done prior to each cyanide dispatch. Drugs test are only allowed in Argentina in the event of an

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accidents and only under a court order. Records were available to show that all parts of the Cruz del Sur safety program are effectively being implemented.

Transport Practice 1.5:      *Follow international standards for transportation of cyanide by sea and air.*

The operation is       in full compliance with      Transport Practice 1.5  
                                  in substantial compliance with  
                                  not in compliance with

*Summarize the basis for this Finding:*

Cruz del Sur does not ship cyanide by sea or by air. This section of the ICMC does not apply to the operation

Transport Practice 1.6:      *Track cyanide shipments to prevent losses during transport.*

The operation is       in full compliance with      Transport Practice 1.6  
                                  in substantial compliance with  
                                  not in compliance with

*Summarize the basis for this Finding:*

Cyanide shipments are tracked using a GPS tracking system and communication equipment. The convoy leader is in charge of communicating the status of the delivery. The GPS tracking system was demonstrated during the audit and real-time information regarding the current position of trucks was found to be very accurate. Shipments are tracked by Cruz del Sur personnel. Cruz del Sur drivers also have cell phones as a back-up means of communication. The communication and tracking equipment is properly maintained and is used daily. For blackout areas, the convoy leader has a satellite phone. Transport documentation shows the amount of cyanide delivered. This paperwork is used to document the chain of custody and is signed upon delivery of the product to the customer. The amount of cyanide delivered is carefully monitored by the driver and remotely through the Cruz del Sur dispatch office. All necessary permits, MSDS information, and emergency contact information is kept in the trucks at all times.

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**2. INTERIM STORAGE: Design, construct and operate cyanide trans-shipping depots and interim storage sites to prevent releases and exposures.**

Transport Practice 2.1: Store cyanide in a manner that minimizes the potential for accidental releases.

The operation is  in full compliance with  in substantial compliance with  not in compliance with Transport Practice 2.1

*Summarize the basis for this Finding:*

Cruz del Sur does not have any interim storage responsibilities. Additionally, no trucks containing cyanide can be stored at the terminal. If a delivery is interrupted, loaded cyanide trucks would be stored in a secure location.

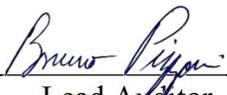
**3. EMERGENCY RESPONSE: Protect communities and the environment through the development of emergency response strategies and capabilities**

Transport Practice 3.1: Prepare detailed emergency response plans for potential cyanide releases.

The operation is  in full compliance with  in substantial compliance with  not in compliance with Transport Practice 3.1

*Summarize the basis for this Finding:*

Cruz del Sur has an emergency response plan (ERP) that addresses all the ICMC requirements for the transportation of cyanide. The plan was reviewed and was found to be acceptable. In the event of an emergency, the Cruz del Sur convoy leader and drivers perform in a primary response and notification role only. Emergency response is then directed by Chemours and carried out by emergency responders or mine personnel if the emergency happens at a mine site. Drivers have hazardous materials and emergency response training. They keep a copy of the ERP in the truck at all times during transport. Cruz del Sur only transports cyanide via truck and all scenarios considered in the ERP were related to truck accidents. Solid sodium cyanide (the only physical form transported), roadway infrastructure differences, the construction of the transportation equipment and the roles of the different emergency responders are discussed in the plan.

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Transport Practice 3.2:      *Designate appropriate response personnel and commit necessary resources for emergency response.*

The operation is       in full compliance with      Transport Practice 3.2  
                                  in substantial compliance with  
                                  not in compliance with

*Summarize the basis for this Finding:*

The roles and responsibilities of relevant internal and external personnel are clearly described in the emergency plan. The Cruz del Sur emergency response team receives regular training on the emergency response plan. Cruz del Sur drivers receive an appropriate level of training to enable them to fulfill their emergency response role. Formal training is refreshed periodically.

Drivers were interviewed and awareness of emergency procedures was appropriate. The emergency plan defines what equipment must be available in the escort vehicle and in each truck. Extra personal protective equipment, spill response and emergency response equipment is available each convoy. A procedure is used to inspect emergency equipment on a regular basis when the trucks are brought in for maintenance and inspections. The pre-trip inspection process is also used to confirm that required emergency equipment is available on the trucks during transport.

Transport Practice 3.3:      *Develop procedures for internal and external emergency notification and reporting.*

The operation is       in full compliance with      Transport Practice 3.3  
                                  in substantial compliance with  
                                  not in compliance with

*Summarize the basis for this Finding:*

The notification procedure, including telephone numbers, is described in the Emergency Response Plan. Drivers have the necessary telephone numbers noted on the paperwork they carry in their trucks. Interviews confirmed that Chemours works closely with Cruz del Sur to ensure that notification procedures and telephone numbers remain current. Contact information was randomly sampled and confirmation was made during the audit that the information was up-to-date. The notification information, is reviewed each year or as necessary for accuracy.

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Transport Practice 3.4:      *Develop procedures for remediation of releases that recognize the additional hazards of cyanide treatment chemicals.*

The operation is       in full compliance with      Transport Practice 3.4  
                                  in substantial compliance with  
                                  not in compliance with

*Summarize the basis for this Finding:*

The Cruz del Sur Emergency Response Plan includes a section that addresses the remediation and neutralization of cyanide solutions and solids. General information is given and the hazards associated with using cyanide treatment chemicals are recognized. Neutralization chemicals are not allowed to be used in or near surface water bodies.

Transport Practice 3.5:      *Periodically evaluate response procedures and capabilities and revise them as needed.*

The operation is       in full compliance with      Transport Practice 3.5  
                                  in substantial compliance with  
                                  not in compliance with

*Summarize the basis for this Finding:*

The Emergency Response Plan states the procedures will be reviewed annually and that drills will be conducted annually. Emergency drills held during the re-certification period include simulating scenarios of human exposure and cyanide spill with testing of the decontamination procedures. The auditor reviewed the drill reports and found them to be effective. Interviews and written procedures confirmed that the plan would also be reviewed after any deployment. Any necessary changes would be made.

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