

APPENDIX 4

TERMS AND CONDITIONS FOR LAND TRANSPORTATION

A	Generic requirements for ALL products.
1.	Buyer confirms that driver is not requested to take samples.
2.	The discharge of product takes place within the customer premises only. (e.g., not on public roadways)?
3.	Personnel can readily escape from the discharge area in case of an emergency.
4.	An eye washer unit* or eye washer bottle is available in the discharge area?
5.	Buyer is responsible for unloading the delivered product and has documented procedures Buyer's operator is present during the critical parts of discharge including hose connection, valve operation, unloading start and end hose connection.
6.	Checks are done before discharge starts to ensure that the storage tank/ vessel has enough free space to receive the entire delivered volume. Note; For liquids, discharging into two or more storage tanks/vessels during one discharge operation is not allowed unless via a manifold.
7.	Checks are done <u>before</u> discharge starts to ensure that the correct product is discharged into the correct storage tank/vessel.
8.	The discharge system / line-up prevents backflow of product from storage tank/vessel to the road tanker.
9.	In the event the hoses or loading arms used for discharging are owned by Customer, such equipment is suitable for the product and in good condition
10.	In case of pressurized discharge, there is a pressure regulator device or system installed and used to prevent over pressurization of the cargo tank during product discharge.
11.	Safe working at height provisions are in place for driver/operator. Note in case the use of a safety harness is required by the Customer unloading site, a rescue plan is in place to avoid suspension trauma for someone hanging in the harness.
12.	Buyer confirms no direct discharge from the delivering tanker into Intermediate Bulk Containers IBC/DRUMS <i>If Filling IBC/Drums directly from bulk tanker is required a separate assessment of the filling installation will be required by seller</i>
13.	Buyer will not discharge product directly to a reactor, unless it is empty, cleaned an off-line.
14.	In situations where trans-loading of product will occur (defined as the transfer of product between transportation containers), Buyer has documented procedures in place to mitigate the risks associated with the trans-loading activity, which may include (by way of example and not limitation) spills, static electricity, working at heights or exposure to product; provided, however, that trans-loading of certain products identified by Seller to Buyer may be prohibited based on the hazards involved.

B	Additional requirements for products having a flashpoint up to 60 °C / 140 °F). The customer confirms that:
15.	A suitable-earthing point is available to connect the tanker?
16.	The customer confirms the use of compressed air for the discharge of flammable products is prohibited?
17.	Vent outlets of storage vessels terminate in a safe location. <i>NOTE: away from ignition sources and as a minimum at such an elevation as to not endanger personnel. Open vents should be fitted with a flame arrestor.</i>
18.	The storage tank and associated pipe work are electrically bonded and grounded (connected to earth)?
19.	There are no ignition sources in the discharge and storage areas, and all electric equipment is suitably rated, inspected and in visibly good condition?
20.	The customer confirms that for liquids that are defined as static accumulators, the discharge line velocity is restricted, and splash filling is avoided to prevent generation of electrostatic charges?
C	Additional requirements for products with high acute toxicity (skull and crossbones label) or corrosive to the eye and/or skin properties. The customer confirms that:
21.	There is an emergency shower immediately available with reliable and regularly tested water supply, which is frost protected where appropriate?
22.	There is a closed discharge system. Any displaced vapors are vented to atmosphere through a suitable abatement system or to a safe location?
23.	There are dedicated lines or effective cleaning procedures in place to avoid cross product contamination?
D	Additional requirements for liquefied flammable gases (LPG type). For Aster's portfolio these are ethylene, propylene, butene's, butadiene and ethylene oxide (EO). The customer confirms that:
24.	All equipment used in liquefied gas service is designed and manufactured according to internationally recognised pressure vessel design codes (e.g. ASME, API, PED, etc.) and suitable for the operating conditions.
25.	The following devices are fitted on storage vessels and periodically inspected: pressure relief valves, pressure indicator, high pressure alarm, liquid level indicator, high level alarm, temperature indicator and high temperature alarm.
26.	There is a water deluge system over truck/rail car unloading area and storage vessel and/or fire water hoses/monitors readily available to cool storage vessel and tanker in the event of a fire.

27.	There is a closed discharge system. No vapours are emitted to atmosphere during unloading. Dry break couplings are highly recommended (mandatory if agreed with customer).
28.	A positive vapour pressure of minimum 0.3 barg (5 psig) is maintained in the truck/rail car at all times to keep air (oxygen) out of the tanker during handling and return to the supplier. (excluded for EO see item 33)
E	Product specific requirements in addition to 1-24 for ethylene oxide (EO). The customer confirms that:
29.	Adequate pressure control and safeguards are in place for the nitrogen supply to avoid overpressure of storage vessel, tank car and other connected equipment.
30.	The storage vessels are fitted with a nitrogen padding system to ensure that EO in the vapor space is maintained in the non-explosive region. <i>NOTE: See ACC or CEFIC Guidelines for details.</i>
31.	The unloading hoses or unloading arms are purged with nitrogen before and after discharge and a leak test is carried out with nitrogen before beginning the unloading of EO.
32.	Nitrogen supply is available with a purity of 99.95%. All lines from nitrogen supply system towards EO storage and other connected processes are dedicated or fitted with adequate backflow protection.
33.	Positive nitrogen pressure of minimum 2.7 barg /40 psig is maintained in the tanker at all times to ensure that EO in the vapour space is maintained in the non-explosive region during unloading and return to the supplier.
34.	If a pump is used for discharge, this is fitted with at least one of the following safeguards to prevent an abnormal temperature rise: <ul style="list-style-type: none"> • low flow shutdown device (trip) and alarm • high temperature shutdown device (trip) and alarm for pump case temperature and/or seal fluid temperature • minimum flow recycle either through an external cooler or back to the storage vessel
35.	EO-selective dry-break couplings are used (applicable in Europe only).
36.	The unloading station is dedicated to EO or shared with compatible products only (e.g. PO).

F	Product specific requirements in addition to 1-20 for propylene oxide (PO). The customer confirms that:
37.	The following devices are fitted on storage vessels and periodically inspected: pressure relief valves, high pressure alarm, liquid level indicator, high level alarm, temperature indicator and high temperature alarm. <i>NOTE: if any of the mentioned devices are missing, answer No and provide details in the comments.</i>
38.	All lines from nitrogen supply system, towards PO storage and other connected processes, are fitted with adequate backflow protection.
39.	There is a water deluge system over storage vessel and truck/rail car unloading area and/or fire water hoses/monitors readily available to cool storage vessel and tanker in the event of a fire. <i>NOTE: at least 2 monitors positioned at 2 different angles of attack with adequate water supply.</i>
40.	PO-selective dry-break couplings are used (applicable in Europe only)
41.	A positive nitrogen pressure of minimum 0.07 barg (1 psig) is maintained in the tanker at all times to keep air (oxygen) out of the tanker during handling and return to the supplier.
G	Product specific requirements in addition to 1-11 and 18-20 for CARADATE 80 (TDI) delivered in bulk. The customer confirms that:
42.	There is sufficient stock (200 kg) of decontamination solution and absorbent material available on site to provide adequate spill response. <i>NOTE: indicate the type of solution in comments.</i>
43.	a safety review using the ISOPA assessment scheme is accepted as part of the overall assessment. <i>NOTE: see www.isopa.org for details and to download the questionnaire.</i>
H	Product specific requirements in addition to 1-11 and 18-20 for Phenol. The customer confirms that:
44.	Pressure/vacuum valves on storage vessels are heat traced or a rupture disc and pressure indicator is fitted under pressure/vacuum valve to prevent crystallisation of phenol.
45.	In case of pump discharge, splash-guards are fitted over pump seal areas.

I	Product specific requirements in addition to 1-11 for Mono Propylene Glycol and/or Di Propylene Glycol Pharmaceutical grades (MPG-USP and/ DPG-LO), and for Acetone National Formulary (Acetone-NF) and Isopropyl Alcohol Excipient Pharmaceutical grade (IPA-USP). The customer confirms that :
46.	Each piece of equipment in contact with the Product is made of suitable materials and cleaned and maintained according to written procedures in compliance with the Cefic Propylene Oxide & Glycols Sector Group Guidelines for Handling and Distribution of Propylene Glycol USP/EP (the "Guidelines") [1].
47.	<p>There are written procedures and documentation for both unloading and loading/packaging operations of the Product. These procedures include:</p> <ul style="list-style-type: none"> • working in a clean area • cleanliness inspection of the transport equipment and all other equipment in contact with the Product • checking of the integrity of the seals before unloading • performing key points analysis for positive identification and contamination detection • sealing of all valves and openings after loading • retaining samples from unloading, loading and packaging operations • draining and capping of the equipment after the operation
48.	Buyer is able to provide full traceability on product origin, packaging material origin, operations on site and subsequent destinations.
49.	Every Product (excluding Acetone NF and IPA USP) lot includes a quality certificate expiry date/shelf life and the product is checked and/or tested for quality and positive identification.
50.	There is a written procedure for Product recall in case of quality concerns.
51.	There is a training programme and training records of all personnel involved in handling of the Product to demonstrate the appropriate knowledge level to deal with GMP produced material.
52.	A safety and quality review (self-assessment or independent third party) has been conducted using the relevant Cefic assessment questionnaire which can be found in Appendix 2 of the Guidelines [1].

[1] See <http://www.petrochemistry.eu/library/technical-documents/37-general-publication/37-propylene-oxide-glycols-sector-group.html> for detailed information. The requirements found in the Guidelines that relate to preserving quality, although developed for MPG USP, are general in nature and can apply to other pharmaceutical grade products, such as Acetone NF and IPA USP, and therefore form part of the requirements for the products specified in Item I of the table above. Where MPG USP requirements referenced in the Guidelines relate to preserving quality, these requirements also apply, pursuant to this Contract under Item I of the table above to any Acetone NF and IPA USP, sold pursuant to this Contract. Where the Guidelines refer to chemical hazards and safe handling, these requirements apply only to any MPG USP, sold pursuant to this Contract.

Where necessary, Seller will furnish Buyer with Safety Data Sheets (“SDS”), which include health, safety, security and environment (“HSSE”) information on Product consistent with regulatory requirements. Buyer will comply with all applicable Laws concerning the availability and use of the Product SDS and Buyer will disseminate appropriate HSSE information to all persons (including but not limited to Buyer’s employees, contractors and customers) as required by applicable law or which Buyer foresees may be exposed to Product. When Buyer further processes, mixes or incorporates the Product into another material, resells, exchanges and/or transfers or otherwise deals with the Product, Buyer agrees to develop and use its own branded SDS and certificates of analysis consistent with the regulatory requirements of the jurisdiction(s) in which Buyer markets the Product, and Buyer shall not use any of Aster’s trademarks, the Aster name, Aster contact numbers and emergency numbers or the Aster Branded SDS on the Buyer’s SDS or certificates or analysis for the Product without obtaining the prior express written consent of Seller. Buyer will take reasonable steps to obtain obligations similar to those in this paragraph from its customers to whom it sells the Products.

Health and Safety is Seller’s top priorities. Seller requires that appropriate minimum controls shall be in place at all Buyer’s loading and discharge locations where Product is delivered to protect Seller’s employees and contractors from injury and/or exposure during handling of Product. Upon reasonable prior notice to Buyer, Seller shall be entitled but never required to (i) conduct a health and safety appraisal of Buyer’s unloading and storage facilities and discharging operations in accordance with Seller’s requirements, performed by Seller or a third party designated by Seller, and in addition or as an alternative (ii) require that Buyer perform a health and safety self-assessment of Buyer’s unloading and storage facilities and discharging operations. If for any reason Seller discovers that Buyer has failed to implement one or more of the applicable minimum requirements listed in the attached Terms and Conditions for Land Transportation, which are incorporated in this Contract, Seller may notify Buyer in writing of Seller’s recommended actions to remedy the failure (the “Notification”). Within seven (7) days or any period agreed between Seller and Buyer of the Notification, Buyer shall provide a plan for immediate mitigation of the identified risks and timing for the implementation of the mitigation steps. If after the expiry of the 7 day period or the agreed period between Seller and Buyer, either no plan is received or the received plan does not adequately address the Notification, Seller (and/or Seller’s Affiliates, as the case may be) shall be entitled to immediately suspend any further supply of Product (and/or any other product covered by other contracts between Seller and/or its Affiliates and Buyer) to Buyer until such time as Buyer delivers a plan acceptable to Seller. Seller shall have the right to terminate this Contract with immediate effect by giving a written termination notice to Buyer if Buyer fails to mitigate the identified risks in a manner acceptable to Seller within 60 days or any period agreed between Seller and Buyer after the Notification.

Additionally, if any major incident occurs at Buyer’s facilities in connection with the delivery or unloading of the Product at Buyer’s facilities, including the release of any hazardous substance, the death or lost time injury of any person, or loss of primary containment of any product exceeding one hundred kilograms, Buyer shall promptly notify Seller of such event and allow Seller and Seller’s delivery contractor the option to provide input to the investigation of such incident. Buyer shall notify Seller of at least the preliminary results of its incident investigation and its plan to remediate the cause of the incident within seven (7) days or any period agreed between Seller and Buyer of the date of the incident. Depending on the severity of the incident, Seller (and/or Seller’s Affiliates, as the case may be) shall be entitled to immediately suspend any further supply of Product (and/or any other product covered by other contracts between Seller and/or its Affiliates and Buyer) to Buyer from the date of the incident until such time that Buyer’s remediation plan addressing the root causes of the incident is made available to Seller acceptable to Seller. Seller shall have the right to terminate this Contract with immediate effect by giving written notice of termination to Buyer if Buyer fails to mitigate the cause of the incident in a manner acceptable to Seller within 60 days of the date of the

incident. By conducting an appraisal, requesting Buyer to perform a self-assessment of Buyer's facilities, or specifying recommendations to be implemented by Buyer, neither Seller nor any designated agent assumes any obligation or liability regarding the HSSE obligations of Buyer or any obligation or liability for personal injury or property damage resulting from the Buyer's operation. Buyer's arrangement of transportation by land for collection of Product at Seller's location is conditional upon Buyer's nominated transportation personnel and equipment meeting Seller's "On-Site Collection Requirements" as defined on the following website:

www.aster.com.sg/safe-product-handling-transportation/road-transport-requirements

These general requirements are to be interpreted in conjunction with site specific requirements for the particular collection location. For avoidance of doubt, where site specific requirements are inconsistent with these general requirements, the site specific requirements prevail.