

1.0 Introduction

IMPORTANT: The Chemical Industry Data Exchange ("CIDX") is a nonprofit corporation, incorporated in the State of New Jersey, which is exempt from federal taxation under Section 501(c)(6) of the Internal Revenue Code. The Chem eStandards and other publications of CIDX have been developed in furtherance of CIDX's nonprofit and tax-exempt purposes. CIDX has taken reasonable measures to develop the Chem eStandards and other CIDX publications in a fair, reasonable, open, unbiased, and objective manner for the purpose of enhancing the ease, speed and cost aspects of securely conducting business electronically in the Chemical Sector. The Chem eStandards and other CIDX publications are developed in compliance with all applicable laws, including antitrust laws, and pursuant to the CIDX Antitrust and Intellectual Property Policies ensuring open access and use, while at the same time preserving contributing companies' individual rights to their own intellectual property. The Chem eStandards may be copied and distributed in the form published and copyrighted in accordance with the license agreed to upon download, but no permission is granted for any change or modification to the Chem eStandards.

The nature of appropriate practices or guidance is likely to change over time and with developments in technology. CIDX cannot guarantee the accuracy, completeness, efficacy, timeliness, or correct sequencing of the Chem eStandards or other publications. Use of the Chem eStandards and any CIDX guidance document or other publication is voluntary, and reliance on them should be undertaken only after an independent review by the user. Inclusion of material in the Chem eStandards or other publications does not constitute a guarantee, warranty, or endorsement by CIDX regarding any guidance, methodologies, or preferences for conducting business, implementing any CIDX standards, or enhancing computer security. Further, neither CIDX nor its officers, directors, members, employees, or agents shall be liable for any loss, damage, or claim with respect to any such documents, work, or services; all such liabilities, including direct, special, indirect, or consequential damages, are expressly disclaimed. Information provided in the Chem eStandards is "as is" without warranty of any kind, either express or implied, including but not limited to the implied warranties of merchantability, fitness for a particular purpose, or freedom from infringement. The Chem eStandards and related trademarks are the property of CIDX. Copyright 2004 Chemical Industry Data Exchange. All rights reserved.

INTRODUCTION TABLE OF CONTENTS

1.1 Overview	5
1.2 Scope of this Release.....	5
1.2.1 Customer/Company Information	5
1.2.2 Product Catalogs/RFQ	6
1.2.3 Purchase Orders	6
1.2.4 Logistics	7
1.2.5 Financials	9
1.2.6 Forecasting	10
1.2.7 Exchange Interactions	11
1.2.8 Product Information.....	13
1.2.9 Credit Upon Proof of Sale (CUPS)	13
1.2.10 Reporting.....	14
1.3 Chem eStandards Release Structure	15
1.3.1 Design Guidelines	15
1.3.2 Common Data Structures	15
1.3.3 Business Transactions.....	15
1.3.4 Appendices	15
1.3.5 W3C XML Schemas.....	16
1.3.6 Sample XML Instance Documents	16
1.3.7 Data Dictionary	16
1.4 Chem eStandards Inquiries/Requests.....	16

1.1 Overview

The Chem eStandards are intended to help improve the ease, speed and cost of conducting business electronically in the chemical industry. CIDX believes there is substantial benefit to be gained by developing and adopting standards-based data interchanges that can be applied to the entire chemicals trading community. This belief has been validated with many of the chemical industry participants, including chemical manufacturers, distributors, chemical industry marketplaces, and software solution providers, throughout the design and development of this standard.

The Chem eStandards were developed by subject matter experts from a cross-section of the chemical industry. The intent was to develop an XML-based data interchange standard that is freely available for broad and appropriate use, without royalty, by all chemical industry participants. The intent was also to create standards that were leveragable throughout the growing on-line chemicals trading network: manufacturers, distributors, logistics providers, financial institutions, and other on-line offerings such as marketplaces, exchanges, and industry consortiums.

The Chem eStandards resulted from an industry effort initiated by BASF, Dow and DuPont in July 2000 which culminated in the publication of V1.0 in October 2000. Phase 2 of this project, on which more than twenty chemical industry companies participated led to V2.0 in March 2001 at which point support responsibility was transferred to CIDX. Three releases of the Chem eStandards have previously been published by CIDX: V2.0.1 in June 2001, V2.0.2 in October 2001 and V3.0 in July 2002. This version of the Chem eStandards (V4.0) encompasses enhancements approved by CIDX since V3.0 was published.

The message formats and business process guidance defined in this release should not be considered a complete set of transactions covering all business processes used in the chemical industry. Future versions of this document will likely contain additional message formats as well as further enhancements to existing message formats. It is the responsibility of the CIDX organization, working with the various members of the chemical industry, to identify the message formats that require definition, to create the necessary documentation, and to publish and support them for the chemical industry.

1.2 Scope of this Release

This version of the Chem eStandards describes 60 business transactions that support and enable various general business processing models for the chemical industry. Specifically, the Chem eStandards document describes data interchange standards in the following functional areas:

1.2.1 Customer/Company Information

Includes data interchange standards necessary to support the sharing of customer/company information and data between Buyers, Sellers, and Marketplaces.

Business Transaction	Description
Qualification Request	The Qualification Request transaction is used to provide

	notification of a Buyer, from a Marketplace, to one or more Sellers. This message is part of a request/response pair and anticipates a Qualification Response message, in reply.
Qualification Response	The Qualification Response transaction is sent in response to a Qualification Request and is the Seller's response to the Marketplace, for a specific Qualification Request.

1.2.2 Product Catalogs/RFQ

Includes data interchange standards necessary to support the promoting, selling, selecting and buying of products and related services.

Business Transaction	Description
Product Catalog Update	The Product Catalog Update transaction is used to add, update, or delete whole products or their attributes and related information (e.g., specifications, descriptions, prices). This message is initiated pushed by a Seller to update their Product Catalog information on a Marketplace. It does not anticipate a response other than acknowledgement of delivery.
Customer Specific Catalog Update	The Customer Specific Catalog Update transaction is used to add, update, or delete whole products or their related pricing information for a specified Buyer at an item/location level. This message is initiated pushed by a Seller to update their Customer Specific Product Catalog information on a Marketplace. It does not anticipate a response other than acknowledgement of delivery.
Request For Quote	The Request For Quote is a transaction sent from a Buyer to a Seller to request special conditions of sale different from the standard conditions of sale offered in the Product catalog. RFQs are not interactive; they generate a response that is sent via alternate means such as fax, telephone, or e-mail.

1.2.3 Purchase Orders

Includes data interchange standards necessary to support the transmission of data regarding purchase orders for products and related services.

Business Transaction	Description
Order Create	The Order Create transaction takes place between the Marketplace or Buyer and the Seller(s). It enables new purchase

	orders to be communicated to the Seller.
Order Response	<p>The Order Response transaction is initiated by the Seller to communicate to the Buyer (either directly or through a Marketplace) the Seller's agreement to supply a specific amount of product, at a specific price, according to set pricing terms, on an agreed-upon date, using agreed-upon transportation arrangements.</p> <p>An Order Response message is sent in response to an Order Create, an Order Change, or a change to the order that is initiated by the Seller (e.g., delivery date).</p>
Order Change	The Order Change transaction is initiated by a Buyer (either directly or through a Marketplace) to request that an existing order be changed in specific ways.
Order Status Request	<p>The Order Status Request transaction is initiated by a Buyer (either directly or through a Marketplace) to inquire about the status of an order.</p> <p>This message is part of a request/response pair.</p>
Order Status Response	The Order Status Response transaction is initiated by the Seller to communicate to the Buyer (either directly or through a Marketplace) the current status of orders that have been previously placed.
Price And Availability Request	The Price and Availability Request transaction is initiated by the Buyer (either directly or through a Marketplace) to request information on the price and availability for specific products.
Price And Availability Response	The Price And Availability Response transaction is initiated by the Seller to communicate to the Buyer (either directly or through a Marketplace) the price and availability of the requested products.

1.2.4 Logistics

Includes data interchange standards necessary to enable the automated scheduling and transport of chemicals, plastic products, and related services.

Business Transaction	Description
Load Tender Motor	<p>The Load Tender Motor transaction is used to offer the transport of a specific motor shipment from place of Origin to final Destination. The information that is transmitted contains all shipment information (e.g., product description including hazardous classification, if applicable, weight, and pickup and delivery dates).</p> <p>This message is part of a request/response pair and anticipates a</p>

	Load Tender Response message in reply.
Load Tender Rail	<p>The Load Tender Rail transaction is used to offer the transport of a specific rail shipment from place of Origin to final Destination. The information that is transmitted contains all shipment information (e.g., rail car number, product description including hazardous classification codes).</p> <p>This message is part of a request/response pair and anticipates a Load Tender Response message in reply.</p>
Load Tender Ocean	<p>The Load Tender Ocean transaction is used to offer the transport of a specific export shipment from place of Origin to final Destination. The information transmitted contains all shipment information (e.g., container number, product description).</p> <p>This message is part of a request/response pair and anticipates a Load Tender Response message in reply.</p>
Load Tender Response	The Load Tender Response message is used to respond to any of the offered Load Tender transactions, Motor, Ocean or Rail. The transaction is used to transmit information that either accepts or rejects the offer to transport.
Carrier Weights	The Carrier Weights transaction is used to convey weights and scale information between interested parties. There is no requesting message for this transaction.
Shipment Instructions	<p>The Shipment Instructions transaction is used to convey all of the pertinent information about a shipment to a third-party agency (warehouse or terminal) that will ship the material. This may also be used to convey shipment information to a customs broker or freight forwarder.</p> <p>This message would expect a Ship Notice message when shipment has occurred. Should the third party agency not be able to comply, a telephone call or e-mail would normally be expected.</p>
Ship Notice	<p>The Ship Notice transaction is used to inform the receiver what has been shipped in a shipment.</p> <p>This is expected as a reply for a Shipment Instruction message from a third party agency, but would also be a normal request from a seller's ERP system to the Buyer and/or Consignee (or possible other interested party).</p> <p>This message is part of a request/response pair and anticipates a Delivery Receipt message (see Section 9 – Forecasting) in reply.</p>
Receipt Notice	The Receipt Notice is a message used to convey information from one party to another after a receipt of a shipment has been made. The message may be used between a Seller and a Buyer or between any two parties (i.e. Forwarder to Seller, Warehouse or Terminal to a Seller). This message is intended to convey receipt information

	back to Seller or to a Consignor the fact that a shipment has been received in its entirety or to inform the shipping party that discrepancies exist and to enumerate where these differences exist.
Shipment Status Request	The Shipment Status Request transaction is a pull message used to request an update to the status of the shipment from the carrier. This message is part of a request/response pair and anticipates a Shipment Status message in reply.
Shipment Status	The Shipment Status transaction is used to report the whereabouts of a Tendered and Accepted shipment. The information that is transmitted indicates the location of the shipment (e.g., In Transit, Delivered). This transaction is often pushed from the originator of this transaction to the receiver. It may also be the response message to a Shipment Status Request message.
Freight Bill	The Freight Bill transaction is used to charge the BillTo party the cost of the transport charges incurred. This transaction includes charges for actual transportation along with additional charges, called Accessorial Charges (e.g., demurrage, detention, fuel surcharge). This message is part of a request/response pair and anticipates a Invoice Response message (see Section 8 – Financials) in reply.

1.2.5 Financials

Includes data interchange standards necessary to support the invoicing and payment processes between Marketplaces, participating companies, and financial institutions.

Business Transaction	Description
Invoice	The Invoice transaction is generated by the Seller or a service provider on behalf of the Seller, and is sent directly, or made available by a third party service, to the Buyer to request payment. This message is part of a request/response pair and may anticipate an optional Invoice Response message.
Invoice Response	The Invoice Response transaction is sent in response to an Invoice message and is initiated by the Buyer, or a third party service provider on behalf of the Buyer. An Invoice Response transaction is either directly sent to the Seller, or to a third party service provider on behalf of the Seller to provide acknowledgment of receipt of good data or to indicate error status.
Payment	The Payment message is sent by the Buyer, or a third party service provider on behalf of the Buyer, to authorize a

	<p>Payment transaction to a Financial Institution to satisfy a Seller's invoice.</p> <p>This message is part of a request/response pair and may anticipate an optional Payment Response message.</p>
Payment Response	<p>The Payment Response transaction is generated by a Financial Institution to notify the Buyer that the payment file has been either received and validated or contains errors that need to be corrected.</p> <p>This message can be sent directly to the Buyer or via a third party service provider to the Buyer.</p>
Payment Detail	<p>The Payment Detail transaction is generated by the Buyer, or a third party service provider on behalf of the Buyer, to provide the Seller with detailed information to reconcile either invoice(s), delivery note(s), or shipment(s).</p> <p>This transaction can be sent directly to the Seller or to a third party service provider on behalf of the Seller. This transaction may be sent as a standalone message, and does not anticipate a response other than acknowledgement of delivery.</p>
Acceptance Notification	<p>Supported by the Japan Petrochemical Industry Association (JPCA), CEDI developed a new Chem eStandards™ message to support the JPCA-BP connectivity model for transacting between Buyers, Sellers, and Shosha (Japanese trading houses). This new message is used by Buyers who do not receive an invoice issued by a Seller. Instead, the Buyer sends an Acceptance Notification message to the Sellers to notify the Seller of modified quantity and monetary values for received product.</p>

1.2.6 Forecasting

Includes data interchange standards necessary to support B2B and Business-to-Marketplace Forecasting, collaborative planning, and vendor-managed inventory (VMI) for North America and Europe.

Business Transaction	Description
Demand Forecast	Seller sends forecast and forecast updates to the Buyer. Buyer sends forecast and forecast updates to Seller.
Demand Forecast Response	Seller sends functional response to the Buyer to confirm receipt of forecast and receipt of forecast updates; Buyer sends functional response to Seller to confirm receipt of forecast and receipt of forecast updates.
Supply Plan	Seller sends supply plan to Buyer to initiate a collaborative

	planning process.
Supply Plan Response	Buyer sends functional response to Seller to confirm receipt of supply plan.
Demand Plan	Buyer sends demand plan to Seller to initiate a collaborative planning process.
Demand Plan Response	Seller sends functional response to Buyer to confirm receipt of demand plan.
Replenishment Proposal Request	Seller sends proposed replenishment to Buyer for approval before creating and executing the replenishment order.
Replenishment Proposal Response	Buyer sends response to Seller to approve creation and execution of a replenishment order.
Replenishment Proposal Change	Buyer sends replenishment proposal change to Seller.
Replenishment Proposal Cancel	Buyer sends replenishment proposal Cancel to Seller.
Inventory Actual Usage	Buyer sends inventory position and/or actual usage to Seller.
Inventory Actual Usage Response	Seller sends functional response to Buyer to confirm receipt of inventory position and actual usage.
Delivery Receipt	Buyer sends delivery receipt to Seller.
Delivery Receipt Response	Seller sends functional response to Buyer to confirm receipt of delivery receipt.

1.2.7 Exchange Interactions

Includes data interchange standards necessary to support the key interactions involving Buyers, Sellers, and Marketplaces. This not only includes Buyer-to-Marketplace and Seller-to-Marketplace transactions, but also Marketplace-to-Marketplace transactions.

Business Transaction	Description
PostingCreate	<p>The Posting Create message is used to create a buy or sell posting on a Marketplace. It contains both line-item detail for one or more line items and general instructions that apply to all of the line items.</p> <p>Posting Create requests are sent to Marketplaces only and may be sent by Buyers, Sellers, or other Marketplaces. This message is part of a request/response pair and anticipates a Posting Response message in reply.</p>
PostingChange	The Posting Change message is used to request changes to an existing posting. Change requests may be against specific line items or they may relate to the global, posting-level

	<p>parameters that impact all of the posting's line items. Line item change requests include operations to Add, Modify, and Delete line items.</p> <p>Posting Change requests are sent to Marketplaces only and may be sent by Buyers, Sellers, or other Marketplaces. This message is part of a request/response pair and anticipates a Posting Response message in reply.</p>
PostingResponse	<p>The Posting Response message is used to communicate the acceptance or rejection of Posting Create and Posting Change requests. Posting Response messages are only sent by Marketplaces and are sent to the Buyers, Sellers, or other Marketplaces who initiated the Posting Create or Posting Change requests.</p>
PostingCancel	<p>The Posting Cancel message is used to request that a posting and all of its line items be removed and rendered inactive. The request has no impact on individual line items that have already been deleted by a previous Posting Change request or accepted by a previous Posting Accept request.</p> <p>Posting Cancel requests are sent to Marketplaces only and may be sent by Buyers, Sellers, or other Marketplaces. This message is part of a request/response pair and anticipates a Posting Cancel Response message in reply.</p>
PostingCancelResponse	<p>The Posting Cancel Response message is used to communicate the success or failure of a Posting Cancel request. Posting Cancel Response messages are only sent by Marketplaces and are sent to Buyers, Sellers, or other Marketplaces who initiated the Posting Cancel request.</p>
PostingStatusRequest	<p>The Posting Status Request message is a request used to inquire about the status of a specific posting, including the status of its individual line items.</p> <p>Posting Status Request requests are sent to Marketplaces only and may be sent by Buyers, Seller, or other Marketplaces. This message is part of a request/response pair and anticipates a Posting Status Response message in reply.</p>
PostingStatusResponse	<p>The Posting Status Response message is used to communicate the status of a posting and its individual line items. Although the status of a posting and its line items may be particular to each Marketplace, in general a posting may be active or inactive. If a posting is active, its line items may generally be active, deleted, or accepted.</p> <p>The Posting Status Response message is only sent by the Marketplace. They may be sent to the Buyers, Sellers, or other Marketplaces who initiated Posting Status Request requests, or</p>

	they may also be “pushed” to Buyers, Sellers, and other Marketplaces without having received a prior Posting Status Request message.
PostingAccept	<p>The Posting Accept message is a request used to indicate that a buyer or seller wishes to accept one or more line items associated with a posting. The line items are not considered accepted, however, until a confirmation is received in a subsequent Posting Accept Response message.</p> <p>Posting Accept requests are sent to Marketplaces only and may be sent by Buyers, Sellers, or other Marketplaces. This message is part of a request/response pair and anticipates a Posting Accept Response message in reply.</p>
PostingAcceptResponse	<p>The Posting Accept Response message is used to communicate the acceptance or rejection of the Posting Accept Request.</p> <p>Posting Accept Response messages are only sent by Marketplaces and are sent to Buyers, Sellers, or other Marketplaces who initiate the Posting Accept requests.</p>

1.2.8 Product Information

Business Transaction	Description
CertificateOfAnalysis	The Seller electronically initiates the CertificateOfAnalysis transaction, either directly to the Buyer or through the Marketplace. This transaction contains the Certificate of Analysis data and associated specification limits.
QualityTestingReport	<p>Seller Side Transaction - The third party laboratory issues a QualityTestingReport transaction to a seller or potential product seller. A seller is a potential product seller when it markets its product to potential buyers, and thus issues product information to potential buyers, but a sale has as yet not occurred and may or may not occur.</p> <p>Buyer Side Transaction - The third party laboratory issues a QualityTestingReport transaction to a product buyer or potential product buyer. In the majority of cases, a sale would have been agreed between the buyer and the seller, and the purpose of the QTR would be to verify the quality of the product either before or after delivery.</p>

1.2.9 Credit Upon Proof of Sale (CUPS)

Business Transaction	Description
Cost Support Request	<p>The Cost Support Request transaction is generated by the distributor and used to initiate a CUPS agreement. The message exchange takes place between the Distributor and the Producer.</p> <p>A response is required from the Producer as this message is part of a request/response pair and anticipates a Cost Support Response message in reply.</p>
Cost Support Request Change	<p>The Cost Support Request Change transaction is generated by the Distributor and is used to change an existing CUPS agreement. The message exchange takes place between Distributor and Producer. A response is required from the producer as this message is part of a request/response pair and anticipates a Cost Support Response message.</p>
Cost Support Response	<p>The Cost Support Response transaction is generated by the producer and is sent in response to a Cost Support Request or Cost Support Request Change.</p> <p>This transaction does not anticipate a response other than acknowledgement of delivery.</p>
Cost Support Credit Request	<p>The Cost Support Credit Request transaction is generated by the distributor for reimbursement of cost supported sales activity during the specified effective support period.</p> <p>A Cost Support Credit Response is required from the Producer as part of a request/response pair.</p>
Cost Support Credit Response	<p>The Cost Support Credit Response transaction is generated by the Producer in response to the Cost Support Credit Request and indicates acceptance or rejection of the request.</p> <p>This transaction does not anticipate a response other than acknowledgement of delivery.</p>

1.2.10 Reporting

Business Transaction	Description
Product Movement Report	<p>The Product Movement Report transaction takes place between the Reporting Entity and the Receiver. This message can be sent as single transaction report, or as a batch message. The Product Movement Report communicates changes in physical location or ownership of product (e.g. sale, consignment, return, stock transfer, stock adjustment).</p>

1.3 Chem eStandards Release Structure

1.3.1 Design Guidelines

CIDX used the OASIS Technical Committee Universal Business Language's Naming and Design Rules (UBLNDR) as general guidance in designing the Chem eStandards v4.0 schema architecture. At the time the Chem eStandards v4.0 draft schemas were made available for public review, the UBLNDR was not finalized. As a result, there are no guarantees that the Chem eStandards v4.0 conform to any given naming or design rule. Additionally, the UBLNDR conforms to the UN/CEFACT Core Components Technical Specification v2.0 and make use of multiple namespaces—two architectural characteristics that CIDX was not ready to implement in Chem eStandards v4.0. The design guidelines used to create the V4.0 Chem eStandards Schema are described in Section 2.

1.3.2 Common Data Structures

Common data structures that exist in multiple Chem eStandards transactions are included in Section 3. Data models and detailed descriptions of these common data structures are not repeated in the various Business Transaction sections of this document.

1.3.3 Business Transactions

Sections 4 through 13 of the Chem eStandards V4.0 contain high-level definitions of the messages; listings of key scope and business model assumptions; business process diagrams, descriptions and scenarios; data models and descriptions for each message. The following Business Transaction families are included in this publication:

- Section 4 – Customer
- Section 5 – Catalog/RFQ
- Section 6 – Purchase Order
- Section 7 – Logistics
- Section 8 – Financials
- Section 9 – Forecasting
- Section 10 – Exchange Interactions
- Section 11 – Product Information
- Section 12 – Credit Upon Proof of Sale
- Section 13 – Reporting

1.3.4 Appendices

Ancillary information is contained in the following series of appendices:

Appendix A - External Code Lists – provides information concerning how to access code lists referenced in the Chem eStandards Data Dictionary

Appendix B - Chem eStandards Compliance Criteria - outlines the requirements for compliance to Chem eStandards.

Appendix C - Transaction Security Requirements – specifies which aspects of security (i.e., authentication, digital signatures, non-repudiation) are required for each business transaction

Appendix D – Chem eStandards Transaction Codes

1.3.5 W3C XML Schemas

The W3C XML Schemas that correspond to the 60 message formats included in Chem eStandards V4.0 are downloadable from website.

1.3.6 Sample XML Instance Documents

Sample XML instance documents (i.e., examples of how the Chem eStandards V4.0 messages are used in different business contexts) are downloadable from website.

1.3.7 Data Dictionary

A printable and an interactive data dictionary are accessible from the website.

1.4 Chem eStandards Inquiries/Requests

To submit Chem eStandards inquiries or change requests, please access the CIDX web site at <http://www.cidx.org>.