

Business Message Standard (BMS)

for

US Trade of Hazardous Goods – US Ground, Air & Sea Transportation Extension

(Process/Sub-process/Industry and/or Product/Geopolitical)

BRG: Align

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Business Requirements Document (BRAD) Reference

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BRAD Title: BRD For Trade of Hazardous Goods – US Ground, Air & Sea Transportation
BRAD Date: 03.20.2005
BRAD Version: 0.1

Document Summary

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Document Change History

Note: During development include revisions in history. Upon Approval, eliminate revisions and include only delta from previous version.

Date of Change	Version	Changed By	Reason for Change	Summary of Change	Model Build #
27.06.05	0.0.1	Eric Kauz	Initial Draft based on Model and Specifications in BRD.	<p>Eliminated the following empty classes in original class diagram.</p> <ul style="list-style-type: none"> • NonTransportation-HazardousUS 	

				<ul style="list-style-type: none"> • NonTransportation-Defined-Chemical • Shipping-PaperNot-Required • NoPassengerCount • NoFlash-PointTemperature <p>Moved Flash Point Temperature so that it was not dependent on Water Transportation only.</p> <p>Converted Quantity attributes to measurements to incorporate Unit Of Measure. Changed boolean attribute names to follow GS1 Best Practices.</p> <p>Collapsed the three subsidiary class division attributes into a single repeatable attribute.</p> <p>Removed hmQuantity and hmAmount as it was determined that these were the same thing as hmVolume.</p>	
10.08.2005	0.0.2	Eric Kauz		Added Test Data	
22.08.2005	0.0.3	Eric Kauz		<ul style="list-style-type: none"> • Added field lengths to model as per original require- 	

				<ul style="list-style-type: none"> ments. • Changed cardinality of packing-Group to 0..1 • Changed relationship to Water-TransportationHazardousInformation to 0..1 • Changed relationship to AirTransportationHazardousInformation to 0..1 • Changed data type for airCargo-Maximum-Quantity to Measurement Value • Changed data type for airPassengerMaximumQuantity to Measurement Value • Made hazardousMaterialVolume optional as per original requirements 	
16.09.2005	0.0.4	Eric Kauz	ITRG Review	<ul style="list-style-type: none"> • Corrected Water-TransportationHazardousInformation Class name for spelling error. • Corrected document and GDD 	

				Report for isAirport-Transport-Forbidden and air-Transport-Forbidden-Reason.	
27.09.05	0.0.5			<ul style="list-style-type: none"> • Updated attribute order in class diagram according to best practices. 	
13.12.05	0.0.6	Eric Kauz	ITRG Review	<ul style="list-style-type: none"> • Eliminated choice between Air- Passenger and Air- Cargo Information. • Eliminated choice for Hazardous- Material Information. 	
25.04.2007	0.0.7	Giovanni Biffi	Editorial Changes	<ul style="list-style-type: none"> • Minor Editorial Changes to the Document 	

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Business Solution Design

1 Business Solution

1.1 Business Domain View

1.1.1 Problem Statement / Business Need

The objective of this requirements document is to identify and define the attributes necessary to communicate the trade of hazardous goods between trading partners, in support of the need for compliance with US Department of Transportation regulations for the transportation of hazardous goods.

1.1.2 Objective

To supply the detail design of the (specific) business transaction needed to meet the requirements of the referenced BRAD(s).

1.1.3 Audience

The audience consists of any participant in the global supply chain. This would include retailers, manufacturers, service providers and other third parties.

1.1.4 Artefacts

Not Available

1.1.5 References

Reference Name	Description
{ref1} BRD For Trade of Hazardous Goods – US Ground, Air & Sea Transportation.	
{ref2} BRAD For Trade of Hazardous Goods – US Ground, Air & Sea Transportation.	

1.1.6 Acknowledgements

1.1.6.1 BRG Members

See Task Group Participants

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1.1.6.2 ITRG Members

Not Applicable

1.1.6.3 Task/Project Group Participants

Function	Name	Company / organisation
Participant	Dan Bauer	3M Consumer and Office Markets
Participant	Sue Brozas	UCCnet
Participant	Jeff Burnham	Georgia-Pacific Corporation
Participant	Chris Canoles	Office Depot
Participant	Nicole Charette	Electronic Commerce Council Of Canada
Participant	Steve Dishion	P & G
Participant	Wayne Doherty	Wal*Mart
Participant	Alex Dye	Master Lock
Participant	Annie Frye	Office Depot
Participant	James Funk	SC Johnson
Participant	Bradley Gampfer	Ace Hardware
Participant	Lawrence Gerstley	Active Decisions
Participant	Rich Gray	Wal*Mart
Participant	Bruce Hawkins	Wal-Mart Stores, Inc
Participant	Andrew Hearn	Uniform Code Council, Inc.
Participant	Jill Huard	Saunders Mfg
Participant	Cindy Jackson	Georgia-Pacific Corporation
Participant	Alice Johnson	3M Supply Chain
Participant	Alice Kent	Wal-Mart Stores, Inc
Participant	Rosalie Killian	BIC corporation
Participant	Kelly Kucera	Transora
Participant	Bob Lecinski	ACCO Brands
Participant	Greg Lenard	Ace Hardware
Participant	John Leyenberger	Wal*Mart
Participant	Debbie McKane	BIC Corporation
Participant	Rattan Menzies	Staples
Participant	Steve Mills	Office Depot
Participant	Jenny Pelusi	HON Company
Participant	Tom Pscheidt	Kensington
Participant	Rich Richardson	Uniform Code Council, Inc.
Participant	Victor Salandanan	Office Depot
Participant	Stan Short	Sauder Woodworking Co.
Participant	Peggy Spofford	3M Consumer and Office Markets
Participant	Cathy Steeb	Eastman Kodak Company
Participant	Sue Tako	3M Supply Chain
Participant	Rob Toole	Uniform Code Council, Inc.
Participant	Jennifer Xiques	UCCnet
Participant	Donna Yeksigian	Transora

1.1.6.4 Design Team Members

Function	Name	Organisation
Modeller	Rob Toole Eric Kauz (revision of document)	GS1
XML Technical Designer	Dipan Anarkat	GS1
EANCOM Technical Designer		
Peer Reviewer		

1.2 Business Context

(Note: The business context of the business)

Context Category	Value(s)
Industry	All
Geopolitical	US
Product	All
Process	Align_Hazardous Goods Information
System Capabilities	EAN.UCC
Official Constraints	None

1.3 Additional Technical Requirements Analysis

1.3.1 Technical Requirements (optional)

Not Applicable

1.4 Business Transaction View

1.4.1 Business Transaction Use Case Diagram

1.4.2 Use Case Description

Not Applicable.

1.4.3 Business Transaction Activity Diagram(s)

Not Applicable.

1.4.4 Business Transaction Sequence Diagram(s) (optional)

Not Applicable.

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1.5 Information Model (including GDD Report)

1.5.1 Data Description:

Class (ABIE)	Attribute (BBIE)	Association (ASBIE)	Secondary Class	Related Requirement
AirCargoInformation				
	airCargoMaximumQuantity			{ref2}29
	isAppropriateForAirCargo			{ref2}28
AirPassengerInformation				
	airPassengerMaximum-Quantity			{ref2}31
	isAppropriateForAirPassenger			{ref2}30
AirTransportationHazardousInformation				
	isAirTransportForbidden			{ref2}26
	airTransportForbiddenReason			{ref2}27
		None	AirCargoInformation	
		None	AirPassengerInformation	
FlashPointInformation				
	hasFlashPoint			{ref2}21
		flashPointTemperature	MultiMeasurement-Value	{ref2}22
HazardousMaterial ShippingPaper-Information				
	isClassifiedAsORMD			{ref2}7
	isExceptedQuantity			{ref2}6
	isHazardousMaterialShippingPaperRequired			{ref2}5

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		None	HazardousMaterialInformation	
HazardousMaterialInformation				
	exemptionOrApprovalReferenceNumber			{ref2}17
	hazardousClassOrDivision			{ref2}10
	hazardousMaterialAdditionalInformation			{ref2}18
	hazardousMaterialTechnicalName			{ref2}9
	hazardousMaterialVolume			{ref2}20
	hazardousSubstanceTechnicalName			{ref2}16
	identificationNumber			{ref2}12
	isHazardousMaterialVolumeRequired			{ref2}19
	isHazardousSubstanceReportableQuantity			{ref2}15
	isLimitedQuantity			{ref2}14
	packingGroup			{ref2}13
	properShippingName			{ref2}8
	subsidiaryClassDivision			{ref2}11
TradeItemHazardousInformationUSExtension				
	isTransportationHazardousMaterial			{ref2}4
	hazardousMaterialInformationChangeDateTime			{ref2}1
	manufacturersNumber			{ref2}2
	transportationRegulator-			{ref2}3

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	yAgency			
		None	AirTransportation-HazardousInformation	
		None	FlashPointInformation	
		None	Hazardous Material Shipping Paper Information	
		None	WaterTransportationHazardousInformation	
WaterTransportationHazardousInformation				
	isWaterTransportForbidden			{ref2}23
	waterTransportForbiddenReason			{ref2}25
	marinePollutantTechnicalName			{ref2}24

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1.5.2 GDD Report :

Trade Item Hazardous Information US Extension

Class (ABIE)	Attribute (BBIE)	Association (ASBIE)	Secondary Class	Official Dictionary Entry Name	Definition	Multiplicity
AirCargoInformation				Air Cargo. Details	A logical grouping containing restrictions on transporting materials via air cargo.	
	airCargoMaximumQuantity			Air Cargo Quantity. airCargoMaximumQuantity.Quantity	The maximum inner volume of receptacles or packagings (inner pack of vendor pack).	1..1
	isAppropriateForAirCargo			AirTransportationHazardousInformation.isAppropriateForAirCargo.Indicator	Flags a dangerous goods type as appropriate for aircargo transportation.	1..1
AirPassengerInformation				Air Passenger . Details	A logical grouping containing restrictions on transporting materials via aircraft that contain passengers.	
	airPassengerMaximumQuantity			Air Passenger Quantity. Air Passenger Maximum Quantity.Quantity	The maximum inner volume of receptacles or packagings (inner pack of vendor pack).	1..1
	isAppropriateForAirPassenger			Air Passenger.isAppropriateForAirPassenger.Indicator	Flags a dangerous goods type as appropriate for air-passenger transportation.	1..1
AirTransportationHazardousInformation				Air Transportation Hazardous Description Group. Details	Logical grouping providing details regarding whether or not a material can be transported via air.	
	isAirTransportForbidden			AirTransportationHazardousInforma-	Identifies if the unique ID is forbidden for a specific regula-	1..1

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				tion.isAirTransportForbidden.Indicator	tory agency.	
	airTransportForbiddenReason			AirTransportHazardousInformation.Air Transportation Forbidden Reason.Text	An explanation of why the unique ID is forbidden for a specific regulatory agency.	0..1
		None	AirCargoInformation	Air Transport Hazardous Information. Association. Air Cargo	Provides details related to air cargo transportation of hazardous goods.	0..1
		None	AirPassengerInformation	Air Transport Hazardous Information. Association. Air Passenger	Provides details related to air passenger transportation of hazardous goods.	0..1
FlashPointInformation				Flash Point Description Group. Details	A logical grouping detailing a material's possible flashpoint.	
	hasFlashPoint			Flash Point Description Group. Has Flash Point. Indicator	Identifies if the material has a flash point for transportation purposes.	1..1
		flashPointTemperature	MultiMeasurementValue	Flash Point Description Group. Flash Point Temperature. Multi-unit Measure	The minimum temperature at which a liquid gives off vapor within a vessel in sufficient concentration to form an ignitable mixture with air near the surface of a liquid.	0..*
HazardousMaterialShippingPaperInformation				Hazardous Material Shipping Paper. Details	A logical grouping determining whether or not a hazmat shipping paper is required.	
	isClassifiedAsORMD			Hazardous Material Identification Classification.Is Classified As ORMD.Indicator	Identifies if the unique ID has been classified as an ORMD by the supplier for the specific agency.	0..1
	isExceptedQuantity			Hazardous Material Identification Classification.Is Excepted Quantity	Identifies if the unique ID has been classified as an excepted quantity by the supplier for the	0..1

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				ity.Indicator	specific agency.	
	isHazardousMaterialShippingPaperRequired			Hazardous Material Shipping Paper. Hazardous Material_ Shipping Paper Required Indicator. Indicator	Indicates whether or not a hazmat shipping paper is required for the Unique ID and Agency.	1..1
		None	Hazardous-MaterialInformation	Hazardous Material Shipping Paper. Association. Hazardous Material	Information on Hazardous Material for Hazardous Material Shipping Paper Information.	0..*
HazardousMaterialInformation				Hazardous Material. Details	A logical grouping detailing the shipment of hazardous materials.	
	exemptionOrApprovalReferenceNumber			Hazardous Material. Exemption Or Approval-Reference Number.Text	Exemption given to the vendor from the government that allows the hazmat item to not strictly fall under the normal hazmat regulations – i.e. because of special packaging.	0..1
	hazardousClassOrDivision			Hazardous Material. Hazardous Class Or Division.Text	The hazard class is the category of hazard assigned to a hazardous material. Specifically, this refers to the hazard class or division number for the material as shown in column 3 of the hazardous materials table in 49 CFR 172.101.	1..1
	identification-Number			Hazardous Material. Identification Number.String	A 6-digit number assigned by a governmental authority to classify a substance or a particular group of substances.	1..1
	isHazardousMaterialVolumeRequired			Hazardous Material. Is Hazardous Material Volume Re-	Indicates if the volume and unit of measure is needed for one or more of the HM description	1..1

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				quired.Indicator	packed in the same factory packaged ship unit, for a unique ID number, agency combination.	
	isHazardousSubstanceReportableQuantity			Hazardous Material. Is Limited Substance Reportable Quantity.Indicator	Identifies if the unique ID in the factory packaging meets the regulatory definition of a hazardous substance.	1..1
	isLimitedQuantity			Hazardous Material. Is Limited Quantity.Indicator	Identifies if the unique ID has been classified as a limited quantity by the supplier. (noted that this attribute was specified by ground and air requirements engineering efforts).	1..1
	hazardousMaterialAdditionalInformation			Hazardous Material. Hazardous Material Additional Information.Text	Any regulatory information required that is not specifically identified by another field.	0..1
	hazardousMaterialTechnicalName			Hazardous Material. Hazardous Material Technical Name.Text	Technical name means a recognized chemical name currently used in scientific and technical handbooks, journals and texts.	0..1
	hazardousMaterialVolume			Hazardous Material. Hazardous Material Quantity.Measurement	Identifies the volume of hazardous material by hazardous material description in one factory packed ship unit.	0..1
	hazardousSubstanceTechnicalName			Hazardous Material. Hazardous Substance Technical Name.Text	Technical name means a recognized chemical name currently used in scientific and technical handbooks, journals and texts. If the proper shipping name does not identify the hazardous substance by name, the name of the hazardous substance	0..1

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					must be entered in parenthesis in association with the basic description.	
	packingGroup			Hazardous Material. Packing Group.Text	Packing Group specifies one or more packing groups assigned to a material corresponding to the proper shipping name and hazard class for that material.	0..1
	properShipping-Name			Hazardous Material. Proper Shipping Name Group.Text	Proper shipping name means the name of the hazardous material shown in 172.101 or 171.8 title 49 of the CFR.	1..1
	subsidiaryClass-Division			Hazardous Material. Subsidiary Class Division.Text	Subsidiary hazard is the hazard or material other than the primary hazard. Specifically, the hazard class or division number shown in column 6 of the hazardous materials table in 49 CFR 172.101	0..*
TradeItemHazardous-InformationUSExtension				US_ Hazardous Item Description Group. Details	An extension class of Trade Item Information used to convey hazardous materials information in the United States of America for goods and materials transmitted via ground, sea and air transportation.	
	hazardousMaterialInformation-ChangeDateTime			US_ Hazardous Item Description Group.hazardousMaterialInformation-ChangeDateTime. DateTime	Reflects the date any hazmat information was updated in the source/recipient data pools.	1..1
	isTransportation-HazardousMate-			US_ Hazardous Item Description	Identifies if the unique ID is regulated by the specific	1..1

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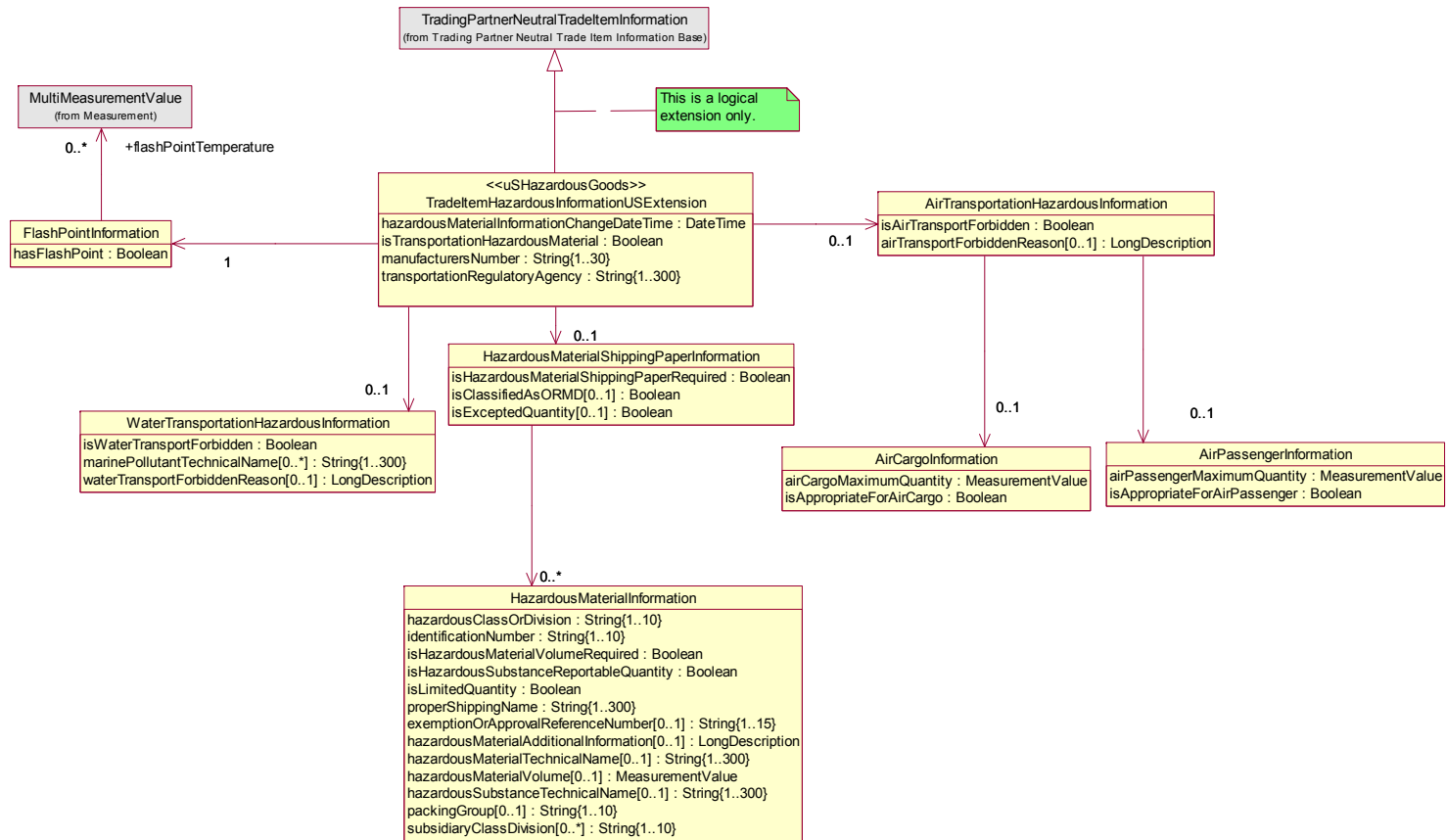
	rial			Group.isTransportationHazardousMaterial.Indicator	agency.	
	manufacturer-sNumber			US_ Hazardous Item Description Group. manufacturersNumber. Text	The supplier's unique stock number.	1..1
	transportation-RegulatoryAgency			US_ Hazardous Item Description Group. transportationRegulatoryAgency.Text	The specific regulatory agency to which the information applies.	1..1
		None	AirTransportationHazardousInformation	US_ Hazardous Item Description Group. Association. Air Transportation Hazardous Description Group	Air Transportation Hazardous Information for the Trade Item-Hazardous Information US Extension.	0..1
		None	FlashPointInformation	US_ Hazardous Item Description Group. Association. Flash Point Description Group	Information on Flash Point for a Trade Item.	1..1
		None	HazardousMaterialShippingPaperInformation	US_ Hazardous Item Description Group. Association. Hazardous Material Shipping Paper	Information on Hazardous Material Shipping Paper Information for a Hazardous Trade Item.	0..1
		None	WaterTransportation-HazardousInformation	US_ Hazardous Item Description Group. Association. Water Transportation Hazardous Description Group	Water Transportation Hazardous Information for a Hazardous Trade Item.	0..1
WaterTransportation-HazardousInformation				Water Transportation Hazardous Description Group. Details	A logical grouping containing restrictions related to transporting materials via water trans-	

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					portation.	
	isWaterTransportForbidden			Water Transportation Hazardous Description Group. Water Transport Forbidden Indicator. Indicator	Identifies if the unique ID is forbidden for a specific regulatory agency.	1..1
	marinePollutant-TechnicalName			Water Transportation Hazardous Description Group. Marine Pollutant Technical Name. Text	A solution or mixture of one or more chemicals and is packaged in a concentration that would result in pollution if spilled.	0..*
	waterTransport-ForbiddenReason			Water Transportation Hazardous Description Group. Water Transportation Forbidden Reason. an1000_Lan	An explanation of why the unique ID is forbidden for a specific regulatory agency.	0..1

End of Report

1.5.3 Class Diagrams



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1.5.4 Code Lists

Not Applicable

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1.6 Business Document Example

Not Available

1.7 Implementation Considerations

Related Business Rules

Number	Rule
1	properShippingName is required if isHazardousMaterialShippingPaperRequired = True
2	hazardousClassOrDivision is required if isHazardousMaterialShippingPaperRequired = True
3	identificationNumber is required if isHazardousMaterialShippingPaperRequired = True
4	hazardousMaterialVolume is required if isHazardousMaterialVolumeRequired = True.
5	flashPointTemperature is required if hasFlashPoint = True
6	airTransportForbiddenReason is required if isAirTransportForbidden = True
7	waterTransportForbiddenReason is required if isWaterTransportForbidden = True

1.8 Testing

1.8.1 Pass / Fail Criteria

Not Available.

1.8.2 Test Data

Attribute	Value
isTransportationHazardousMaterial	True
hazardousMaterialInformationChange-DateTime	2004-12-10T12:00:01.000
manufacturersNumber	873928
transportationRegulatoryAgency	US Department of Transportation
isAirTransportForbidden	True
airTransportForbiddenReason	Combustable at low temperatures.
hasFlashPoint	True
isClassifiedAsORMD	False
isExceptedQuantity	False
isHazardousMaterialShippingPaperRequired	True
hazardousClassOrDivision	6.1
identificationNumber	NA2587
isLimitedQuantity	True
isHazardousSubstanceReportableQuantity	True
isHazardousMaterialVolumeRequired	True
packingGroup	II
properShippingName	Benzoquinone
hazardousMaterialAdditionalInformation	Flammable Liquids
hazardousMaterialTechnicalName	Quinone

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hazardousMaterialVolume	25 kg
isWaterTransportForbidden	False

1.9 Appendices

1.10 Summary of Changes

Change	BMS Ver- sion	Associated CR Number
<ul style="list-style-type: none">Initial Release		

2 Technical Solution Design

This section provides the specifications for the standards content ITRG approves. It is called the Technical Solution Design (TSD).

The Technical Solution Design contains:

- TSD Zip file Table of Contents
- Business Message Standard Section Technical Level GDD Report
- XSD (XML Schema Documents)
- XML Instance File and HTML Form View (XML and HTML files containing sample data specified in Section 1.6)

In the process of approving the Technical Solution Design, the ITRG will be provided the following artefacts:

- Any relevant Business Requirements Analysis Document (BRAD)
- Any relevant Business Requirements Document (BRD)
- Section 1 of Business Message Standard (Business Solution Design)
- Comment Resolution Template from Technical Public Review
- XML Test Report
- Change Request
- Other informative or reference documents