

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

Version:0.0.7

(r stands for revision number of a version)

Date:13.12.05

(dd.mm.cyy example 27.10.2004)



Change Request Reference

Refer to Change Request (CR) Number(s):	04-000055
CR Submitter(s):	Alice M. Kent – Wal*mart
Date of CR Submission to GSMP:	9-April-2004

Business Requirements Document (BRAD) Reference

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BRAD Date: 01 February 2005
BRAD Version: 0.9

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. 	
20.04.2007	0.0.7	Giovanni Biffi	Editorial Changes	<ul style="list-style-type: none"> • Minor editorial changes to the document 	

Business Message Standard

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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

Artefact name	State	Artefact / State description

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.	

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Acknowledgements

1.1.5.1 BRG Members

See Task Group Participants

1.1.5.2 ITRG Members

Not Applicable

1.1.5.3 Task/Project Group Participants

Function	Name	Company / organisation
Participants	Dan Bauer	3M Consumer and Office Markets
	Sue Brozas	UCCnet
	Jeff Burnham	Georgia-Pacific Corporation
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1.1.5.4 Design Team Members

Function	Name	Organisation
Modeller	Rob Toole Eric Kauz (revision of document)	UCC/GS1
XML Technical Designer		
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
		None	HazardousMateri-	

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			alInformation	
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
	transportationRegulatoryAgency			{ref2}3
		None	AirTransportation-	

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			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	Not Available	
	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	Not Available	
	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	Not Available	
	isAirTransportForbidden			AirTransportationHazardousInformation.isAirTransportForbidden.Indicator	Identifies if the unique ID is forbidden for a specific regulatory agency.	1..1
	airTransportForbiddenReason			AirTransportHazardousInformation.Air Transportation Forbidden	An explanation of why the unique ID is forbidden for a specific regulatory agency.	0..1

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				Reason.Text		
		None	AirCargoInformation	Air Transport Hazardous Information. Association. Air Cargo	None	0..1
		None	AirPassengerInformation	Air Transport Hazardous Information. Association. Air Passenger	None	0..1
FlashPointInformation				Flash Point Description Group. Details	Not Available	
	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	Not Available	
	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.Indicator	Identifies if the unique ID has been classified as an excepted quantity by the supplier for the specific agency.	0..1
	isHazardousMaterialShippingPaperRequired				Indicates whether or not a hazmat shipping paper is required for the Unique ID and Agency.	1..1

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		None	Hazardous-MaterialInformation	Hazardous Material Shipping Paper. Choice_Association. Hazardous Material	None	0..*
HazardousMaterialInformation				Hazardous Material. Details	Not Available	
	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
	hazardousClassesOrDivision			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 Required.Indicator	Indicates if the volume and unit of measure is needed for one or more of the HM description packed in the same factory packaged ship unit, for a unique ID number, agency combination.	1..1
	isHazardousSubstanceReportableQuantity			Hazardous Material. Is Limited Substance Reportable Quantity	Identifies if the unique ID in the factory packaging meets the regulatory definition of a haz-	1..1

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				ity.Indicator	ardous substance.	
	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 must be entered in parenthesis in association with the basic description.	0..1
	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	0..1

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					hazard class for that material.	
	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 Divi- sion.Text	Subsidiary hazard is the hazard or material other than the pri- mary hazard. Specifically, the hazard class or division number shown in column 6 of the haz- ardous materials table in 49 CFR 172.101	0..*
TradeItemHazardous- InformationUSEXten- sion				US_ Hazardous Item Description Group. De- tails	An extension class of Trade Item Information used to con- vey hazardous materials infor- mation in the United States of America for goods and materials transmitted via ground, sea and air transportation.	
	hazardousMateri- alInformation- ChangeDateTime			US_ Hazardous Item Description Group.hazardousMateri- alInformation- ChangeDateTime. DateTime	Reflects the date any hazmat information was updated in the source/recipient data pools.	1..1
	isTransportation- HazardousMate- rial			US_ Hazardous Item Description Group.isTransportationH azardousMate- rial.Indicator	Identifies if the unique ID is regulated by the specific agency.	1..1
	manufacturer- sNumber			US_ Hazardous Item Description Group. manufacturersNumber. Text	The supplier's unique stock number.	1..1

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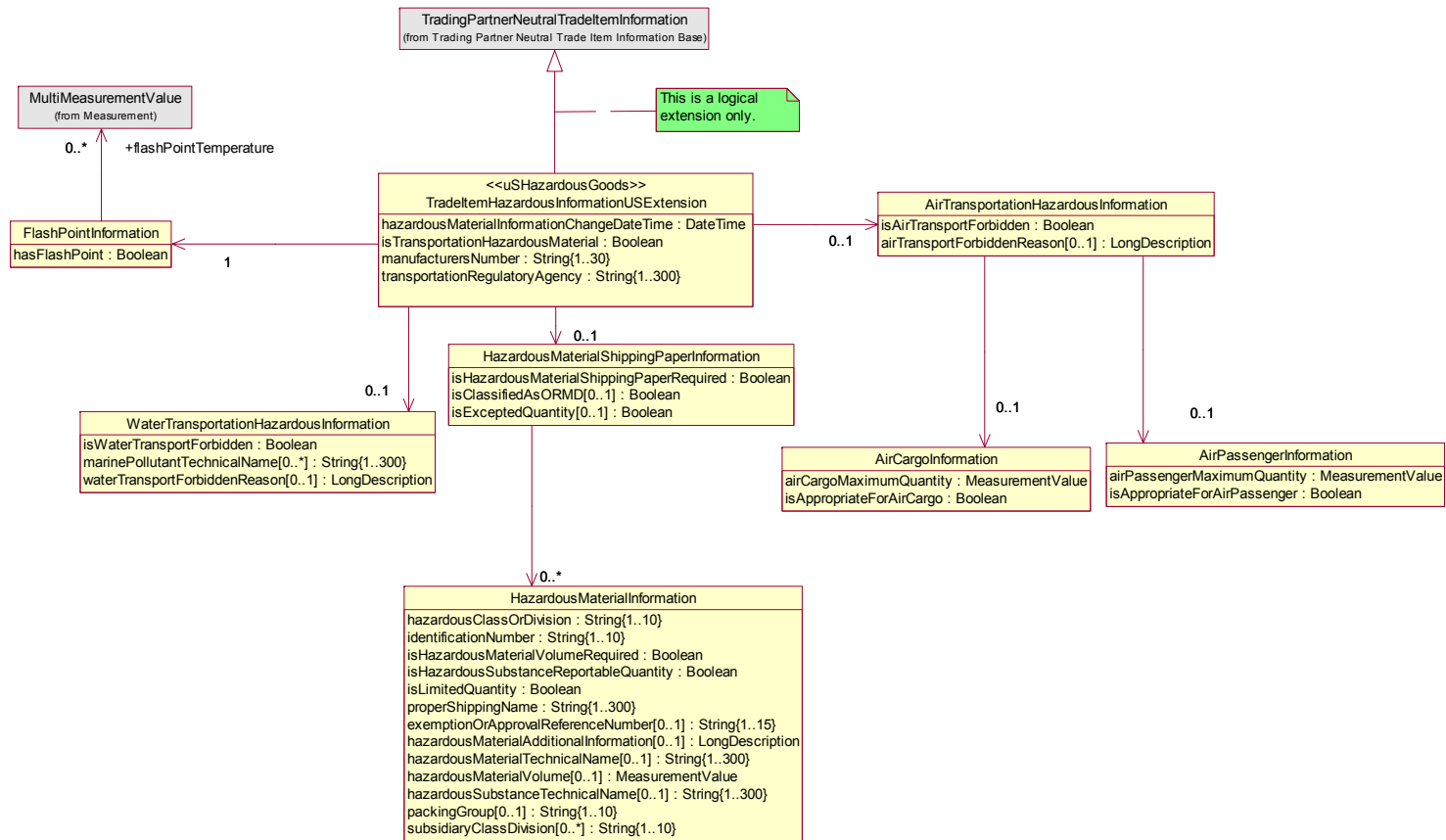
	transportation-RegulatoryAgency			US_ Hazardous Item Description Group. transportationRegulatoryAgency.Text	The specific regulatory agency to which the information applies.	1..1
		None	AirTransportationHazardousInformation	US_ Hazardous Item Description Group. Association. Air Transportation Hazardous Description Group	None	0..1
		None	FlashPointInformation	US_ Hazardous Item Description Group. Association. Flash Point Description Group	None	1..1
		None	Hazardous Material Shipping Paper Information	US_ Hazardous Item Description Group. Association. Hazardous Material Shipping Paper	None	0..1
		None	WaterTransportationHazardousInformation	US_ Hazardous Item Description Group. Association. Water Transportation Hazardous Description Group	None	0..1
WaterTransportationHazardousInformation				Water Transportation Hazardous Description Group. Details	Not Available	
	isWaterTransportForbidden				Identifies if the unique ID is forbidden for a specific regulatory agency.	1..1
	marinePollutantTechnicalName				A solution or mixture of one or more chemicals and is packaged in a concentration that would result in pollution if spilled.	0..*
	waterTransport-				An explanation of why the	0..1

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	ForbiddenReason				unique ID is forbidden for a specific regulatory agency.	
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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

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hazardousMaterialAdditionalInformation	Flammable Liquids
hazardousMaterialTechnicalName	Quinone
hazardousMaterialVolume	25 kg
isWaterTransportForbidden	False

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1.9 Appendices

1.10 Summary of Changes

(Details changes to BMS for each version by BMS Section)

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