



Business Message Standard (BMS)

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

BMS Release: 2.1, BRG Name: Align

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Business Requirements Document (BRAD) Reference

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BRD For Trade of Hazardous Goods – US Ground, Air & Sea Transportation	01-Feb-2005	0.9
BRD For Trade of Hazardous Goods – US Ground, Air & Sea Transportation	20-March-2005	0.1

Document Change History

Date of Change	Version	Changed By	Reason for Change	Summary of Change
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">NonTransportationHazardousUSNonTransportationDefinedChemicalShippingPaperNotRequiredNoPassengerCountNoFlashPointTemperature <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.</p> <p>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>

Date of Change	Version	Changed By	Reason for Change	Summary of Change
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 requirements. Changed cardinality of packingGroup to 0..1 Changed relationship to WaterTransportationHazardousInformation to 0..1 Changed relationship to AirTransportationHazardousInformation to 0..1 Changed data type for airCargoMaximumQuantity 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	<p>Corrected WaterTransportationHazardousInformation Class name for spelling error.</p> <p>Corrected document and GDD Report for isAirportTransportForbidden and airTransportForbiddenReason.</p>
27.09.05	0.0.5			Updated attribute order in class diagram according to best practices.
13.12.05	0.0.6	Eric Kauz	ITRG Review	<p>Eliminated choice between AirPassenger and AirCargo Information.</p> <p>Eliminated choice for HazardousMaterial Information.</p>

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1. Business Domain View

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 De-partment of Transportation regulations for the transportation of hazardous goods.

1.2. Objective

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

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.

1.4. References

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

1.5. Acknowledgements

The following is a list of individuals (and their companies) who participated in the creation, review and approval of this BMS.

1.5.1. BRG Work Group

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1.5.2. Design Team Members

Function	Name	Organisation
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2. Business Context

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

3. Additional Technical Requirements Analysis

This section documents the analysis of additional technical requirements.

3.1. Technical Requirements (optional)

Number	Statement	Rationale

4. Business Transaction View

4.1. Business Transaction Use Case Diagram

Not Applicable

4.2. Use Case Description

Not Applicable

4.3. Business Transaction Activity Diagram(s)

Not Applicable

4.4. Business Transaction Sequence Diagram(s) (optional)

Not Applicable



5. Information Model (Including GDD Report)

5.1. Data Description

Class (ABIE)	Attribute (BBIE)	Association (ASBIE)	Secondary Class	Related Requirement
AirCargoInformation				
	airCargoMaximumQuantity			{ref2}29
	isAppropriateForAirCargo			{ref2}28
AirPassengerInformation				
	airPassengerMaximumQuantity			{ref2}31
	isAppropriateForAirPassenger			{ref2}30
AirTransportationHazardousInformation				
	isAirTransportForbidden			{ref2}26
	airTransportForbiddenReason			{ref2}27
		None	AirCargoInformation	
		None	AirPassengerInformation	
FlashPointInformation				
	hasFlashPoint			{ref2}21
		flashPointTemperature	MultiMeasurementValue	{ref2}22
HazardousMaterialShippingPaperInformation				
	isClassifiedAsORMD			{ref2}7
	isExceptedQuantity			{ref2}6
	isHazardousMaterialShippingPaperRequired			{ref2}5



Class (ABIE)	Attribute (BBIE)	Association (ASBIE)	Secondary Class	Related Requirement
		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
TradeItemHazardousInformationUS Extension				
	isTransportationHazardousMaterial			{ref2}4
	hazardousMaterialInformationChangeDateTime			{ref2}1
	manufacturersNumber			{ref2}2
	transportationRegulatoryAgency			{ref2}3
		None	AirTransportationHazardousInformation	
		None	FlashPointInformation	



Class (ABIE)	Attribute (BBIE)	Association (ASBIE)	Secondary Class	Related Requirement
		None	Hazardous Material Shipping Paper Information	
		None	WaterTransportationHazardousInformation	
WaterTransportationHazardousInformation				
	isWaterTransportForbidden			{ref2}23
	waterTransportForbiddenReason			{ref2}25
	marinePollutantTechnicalName			{ref2}24

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 air cargo 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.isAppropriate	Flags a dangerous goods type as appropriate for air-passenger transportation.	1..1



Class (ABIE)	Attribute (BBIE)	Association (ASBIE)	Secondary Class	Official Dictionary Entry Name	Definition	Multiplicity
				ForAirPassenger.Indicator		
AirTransportationHazardousInformation				Air Transportation Hazardous Description Group. Details	Logical grouping providing details regarding whether or not a material can be transported via air.	
	isAirTransportForbidden			AirTransportationHazardousInformation.isAirTransportForbidden.Indicator	Identifies if the unique ID is forbidden for a specific regulatory agency.	1..1
	airTransportForbiddenReason			AirTransportHazardousInformation.AirTransportationForbiddenReason.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 vapour 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

Class (ABIE)	Attribute (BBIE)	Association (ASBIE)	Secondary Class	Official Dictionary Entry Name	Definition	Multiplicity
	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			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	HazardousMaterialInformation	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 ApprovalReference 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
	identificationNumber			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	Identifies if the unique ID in the factory packaging meets the regulatory definition of a hazardous substance.	1..1



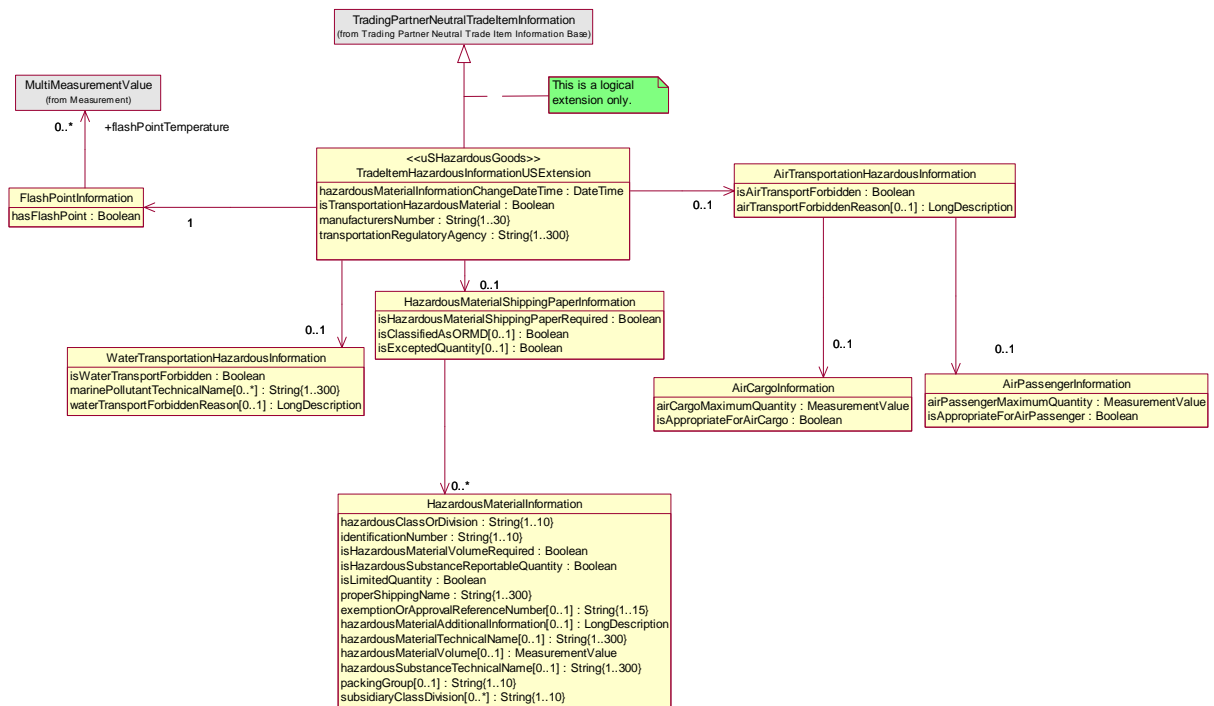
Class (ABIE)	Attribute (BBIE)	Association (ASBIE)	Secondary Class	Official Dictionary Entry Name	Definition	Multiplicity
				Quantity.Indicator		
	isLimitedQuantity			Hazardous Material. Is Limited Quantity.Indicator	Identifies if the unique ID has been classified as a limited quantity by the supplier. (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 hazard class for that material.	0..1
	properShippingName			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
	subsidiaryClassDivision			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..*

Class (ABIE)	Attribute (BBIE)	Association (ASBIE)	Secondary Class	Official Dictionary Entry Name	Definition	Multiplicity
TradeItemHazardousInformationUSExtension				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.	
	hazardousMaterialInformationChangeDateTime			US_ Hazardous Item Description Group.hazardousMaterialInformationChangeDateTime.DateTime	Reflects the date any hazmat information was updated in the source/recipient data pools.	1..1
	isTransportationHazardousMaterial			US_ Hazardous Item Description Group.isTransportationHazardousMaterial.Indicator	Identifies if the unique ID is regulated by the specific agency.	1..1
	manufacturersNumber			US_ Hazardous Item Description Group.manufacturersNumber.Text	The supplier's unique stock number.	1..1
	transportationRegulatoryAgency			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 ItemHazardous 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	Hazardous Material Shipping	US_ Hazardous Item Description Group. Association. Hazardous	Information on Hazardous Material Shipping Paper Information for a Hazardous Trade Item.	0..1



Class (ABIE)	Attribute (BBIE)	Association (ASBIE)	Secondary Class	Official Dictionary Entry Name	Definition	Multiplicity
			Paper Information	Material Shipping Paper		
		None	WaterTransportationHazardousInformation	US_ Hazardous Item Description Group. Association. Water Transportation Hazardous Description Group	Water Transportation Hazardous Information for a Hazardous Trade Item.	0..1
WaterTransportationHazardousInformation				Water Transportation Hazardous Description Group. Details	A logical grouping containing restrictions related to transporting materials via water transportation.	
	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
	marinePollutantTechnicalName			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..*
	waterTransportForbiddenReason			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

5.3. Class Diagrams



5.4. Code Lists

Not Applicable

6. Business Document Example

Not Applicable

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

8. Testing

This section describes the testing criteria for business solutions.

8.1. Pass / Fail Criteria

No.	Test Criteria	Related Requirement	Design Element	Pass Criteria	Fail Criteria
1					
2					
3					

8.2. Test Data

Attribute	Value
isTransportationHazardousMaterial	True
hazardousMaterialInformationChangeDateTime	2004-12-10T12:00:01.000
manufacturersNumber	873928
transportationRegulatoryAgency	US Department of Transportation
isAirTransportForbidden	True
airTransportForbiddenReason	Combustible 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
hazardousMaterialVolume	25 kg
isWaterTransportForbidden	False

9. Appendices

Not Applicable



10. Summary of Changes

Change	BSD Version	Associated CR Number