



Transportation Emergency Management – Partnering to Protect People and the Planet

Intermodal Tank Container Association (ITCA)
Houston, Texas

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Dow Inc. Global Integrated Supply Chain
Transportation Safety, Security & Sustainability

November 7, 2019



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ABOUT DOW

The background of the image is a complex, three-dimensional-looking surface. It consists of numerous horizontal, wavy bands that create a sense of depth and movement. The surface has a metallic or reflective quality, with highlights and shadows that emphasize its undulating form. A faint grid pattern is visible across the surface, suggesting a tiled or paneled structure. The overall color palette is monochromatic, ranging from light grays to dark grays, with the text providing a sharp contrast in red.

ABOUT DOW

Corporate Stats¹

2018 Pro Forma Op.
EBITDA of **\$9.1B**

2018 Pro Forma Op.
EBIT of **\$6.2B**

2018 Pro Forma Net
Sales of **\$49.7B**

113 manufacturing sites
in **31** countries

Serving customers in
~160 countries



DOW[®]

OUR AMBITION

To become the most innovative,
customer-centric, inclusive
and sustainable materials
company in the world

OUR GOAL

Profitable growth &
best-in-class performance

OUR CORE VALUES

Integrity
Respect for people
Protecting our planet



DOW[®]

(1) Source: Dow Inc. Amendment #4 to the Form 10 filed on 3/8/2019

NORTH AMERICA SHIPPING FOOTPRINT



Many shipping points,
including third party facilities

- 36 Manufacturing Sites in US and Canada
- Numerous contracted terminals and warehouses

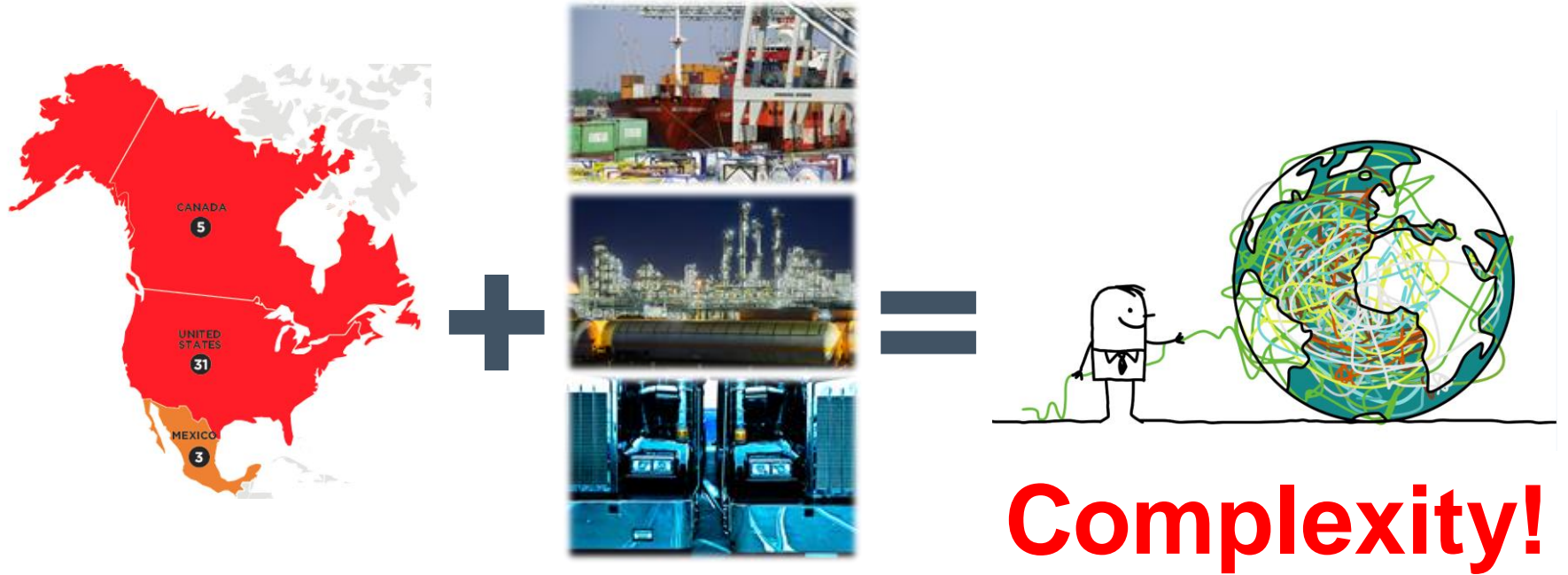
NORTH AMERICA SHIPPING FOOTPRINT

Many types of logistics service providers

- Road
- Rail
- Bulk Marine
- Air
- Package Marine
- Warehouses
- Bulk liquid terminals
- Transloaders
- Third-party logistics providers (brokers)



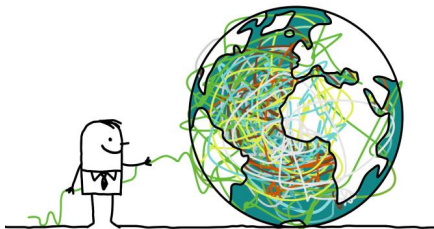
NORTH AMERICA SHIPPING FOOTPRINT



REPORTING DOW TRANSPORTATION SAFETY & SECURITY INCIDENTS

- As an American Chemistry Council (ACC) Responsible Care® Member, Dow works continuously to uphold the Responsible Care® Guiding Principles, including (among others):
 - ***To work with customers, carriers, suppliers, distributors and contractors to foster the safe and secure use, transport and disposal of chemicals and provide hazard and risk information that can be accessed and applied in their operations and products.***
- As part of our commitment to living the ACC RC Guiding Principles, Dow requires **all** of our contracted logistics service providers to notify us of **all** unplanned safety or security events which occur during the transportation of our products
- Our requirement includes reporting incidents involving products regulated as Dangerous Goods and non-Dangerous Goods, regardless of quantity of product released
- Given the **complexity** of our supply chain, our reporting process must be as **efficient** and **effective** as possible for all parties involved

REPORTING DOW TRANSPORTATION SAFETY & SECURITY INCIDENTS



Complexity!



**Effective
Incident
Communication
Strategy**

REPORTING DOW TRANSPORTATION SAFETY & SECURITY INCIDENTS

- CHEMTREC® is Dow's designated call center for all transportation events in the United States
 - Carriers need to know one number
- Clear communication paths must be defined and maintained between all parties involved in managing transportation incidents **prior to an event**



*Perhaps not the optimal time
to establish key contacts*

Reporting Dow Transportation Safety & Security Incidents

- Examples of events which must be reported:
 - Personnel exposure or injury
 - Impact to community (for example evacuation, highway closure)
 - Product release
 - ✓ All products, all releases, any amount
 - Accidents (including those events without product release)
 - Events which require our product to be repackaged en route
 - Known or suspected mixing of our products with other products
 - Security events
 - ✓ Human or contraband smuggling
 - ✓ Product which is unaccounted for (known or suspected)
 - ✓ Evidence or suspicion of tampering

Reporting Dow Transportation Safety & Security Incidents

Initiating Event

- Carrier triggers emergency response appropriate for event severity & calls CHEMTREC per instructions on Dow shipment paperwork

CHEMTREC provides SDS and notifies Dow

- CHEMTREC collects key information from caller (i.e. carrier), and provides SDS if required
- CHEMTREC notifies Dow Emergency Services & Security (ES&S) at our 24/7 call-center

Dow ES&S contacts the Caller

- Dow ES&S confirms that appropriate emergency response has been initiated
- Dow ES&S establishes contacts with shipping site, Dow Product Stewards and Reactive Chem Subject Matter Experts as necessary

Dow ES&S Monitors Situation

- Dow ES&S maintains communication channel with caller or designated rep as long as incident scene is active
- Dow ES&S issues communication to pre-determined internal distribution list(s)

Dow TSS&S and Modal Teams Follow-up with Carrier

- Dow Transportation Safety, Security & Sustainability (TSS&S) and modal operational teams work with carriers to investigate situation and obtain valuable learnings

**Help us
Help you!
Call CHEMTREC®**



Excellent Practices in Transportation Incident Communications

- Analyze key supply chain components
 - Identify critical contacts before you need to call on them in an emergency
- Everything changes – keep up!
 - Periodically review your communication strategy and update contacts
- Review information on “Business Continuity Plans”:
<https://www.ready.gov/business/implementation/continuity>
- Hug an emergency responder today, and thank them for their service!

The screenshot shows the Ready.gov website with the URL <https://www.ready.gov/business/implementation/continuity> in the browser address bar. The page features the Ready logo, navigation links for "About Ready", "Contact Us", and "FAQs", and a search bar. A main navigation menu includes "Disasters and Emergencies", "Make a Plan", "Get Involved", "Ready Business", "Ready Kids", and "Resources". The "Business Continuity Plan" page is displayed, showing a four-step process: Business Impact Analysis, Recovery Strategies, Plan Development, and Testing & Exercises. A sidebar on the right lists categories: "Disasters and Emergencies", "Make a Plan", "Get Involved", "Ready Business" (highlighted), "Business", "Leaders in Business", and "Community Resilience".

Business Continuity Plan

Business Impact Analysis	Recovery Strategies	Plan Development	Testing & Exercises
<ul style="list-style-type: none">• Develop questionnaire• Conduct workshop to instruct business function and process managers how to complete the BIA• Receive completed BIA questionnaire forms• Review BIA questionnaires• Conduct follow-up interviews to validate information and fill any information gaps	<ul style="list-style-type: none">• Identify and document resource requirements based on BIA• Conduct gap analysis to determine gaps between recovery requirements and current capabilities• Explore recovery strategy options• Select recovery strategies with management approval• Implement strategies	<ul style="list-style-type: none">• Develop plan framework• Organize recovery teams• Develop Relocation Plans• Write business continuity and IT disaster recovery procedures• Document manual workarounds• Assemble plan; validate; gain management approval	<ul style="list-style-type: none">• Develop testing, exercise and maintenance requirements• Conduct training for business continuity team• Conduct orientation exercises• Conduct testing and document test results• Update BCP to incorporate lessons learned from testing and exercises

Excellent Practices in Transportation Incident Communications

- Any questions on our Transportation Incident reporting program before we move on?

Dow Material Handling Guidelines Repository



Material Handling Guidelines Repository

Search For Material

Enter in the Material Number and select Search



Please input the result of this question before search: 12 + 2 =

14

Material Number: ⓘ

171469

Search For Material

-  [MHG Repository User Job Aid](#)
-  [Marine Only_Material Number Cross-Reference file](#)
-  [Marine Only_Material Number Cross-Reference file](#)
-  [MHG Repository Monthly Change Log](#)

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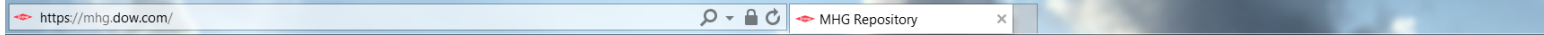
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Dow Material Handling Guidelines Repository



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Enter in the Material Number and select Search


Material Number: 


171469

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 [MHG Repository User Job Aid](#)

 [Marine Only_Material Number Cross-Reference file](#)

 [Marine Only_Material Number Cross-Reference file](#)

 [MHG Repository Monthly Change Log](#)

Verify that the Material Description is correct

Click on the Material Number to continue

Material Number: **00000171469**

Material Description: **Diethanolamine Bulk**

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Dow Material Handling Guidelines Repository



Material Handling Guidelines Repository

Material Number: 00000171469

[New Search](#)

Material Description: Diethanolamine Bulk

Select the Mode of Transportation

Select Shipping From

Press Get Material Documents button to retrieve documents

18 ISO Tank Sea Export



[Get Material Documents](#)

Shipping From: ?

Non U.S. or Canadian Site U.S. or Canadian Site



Dow Material Handling Guidelines Repository



Material Handling Guidelines Repository

Material Number: 00000171469

[New Search](#)

Material Description: Diethanolamine Bulk

Select the Mode of Transportation

18 ISO Tank Sea Export



[Get Material Documents](#)

Shipping From: U.S. or Canadian Site

Select the Material Information Needed
(Prior Content Search, View documents, Export documents)

Prior Content Website Search

[Prior Content Website Search](#)

[Carrier Pre-Load Checklist](#)

Include Material Info

Viewable Documents (click name to view)

[Prior Content List](#)

MSDS Search Number 00087913 www.Dow.com

(if no MSDS results are found, contact your Dow Representative)

Select one or many documents to export



Exported documents should not be used for daily operations. They are only for ad hoc purposes as they will not reflect ongoing updates.

[Export Selected Document\(s\)](#)

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Dow Material Handling Guidelines Repository



Material Handling Guidelines Repository

Material Number: 00000171469

◀ Back to Material Detail

🔍 New Search

Material Description: **Diethanolamine Bulk**

Transportation Mode: **18 ISO Tank Sea Export**

Prior Content List

The purpose of this document is to provide information on Prior Content requirements for Shipments and Storage and Handling Facilities. This document is intended for Dow Chemical purposes only. Any exceptions for shipping, transportation and handling of applicable products should be in agreement in writing between the Quality System Specialist and/or the Business Quality Leader (or his / her designated representative). Dow does not accept any liability from violating the exception process.

Carrier Action: Unacceptable and Acceptable List: If the Prior Content is not found on the list, contact your Dow Representative for further clarification. Providing a MSDS for the prior content will be required.

Prior Content List Name: Ind Sol Ethanolamines **Document Type:** Uncontrolled when exported or printed

Filter on Prior Content Name or CAS Number (if CAS number is not found, search on Name)

Prior Content Name ▲

Spec/CAS Number

Pre-Load Checklist

🔍 Apply Filters

"EPOTEC YD 128 Bisphenol-A-(epichlorohydrin) epoxy

25068-38-6

Pre-Load Checklist

#1 Batch Still Residues

Pre-Load Checklist

(Crude) Aldehyde AA

Pre-Load Checklist

1,1,1-Trichloroethane

Pre-Load Checklist

1,1,2-Trichloroethylene

Pre-Load Checklist

1,2,4 Trimethylbenzene

95-63-6

Pre-Load Checklist

1,2,4-Trichlorobenzene

Pre-Load Checklist



Dow Material Handling Guidelines Repository



Material Number: 0000171469

◀ Back to Material Detail

🔍 New Search

Material Description: **Diethanolamine Bulk**

Transportation Mode: **18 ISO Tank Sea Export**

Prior Content List

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Filter on Prior Content Name or CAS Number (if CAS number is not found, search on Name)

Prior Content Name ▲

Spec/CAS Number

Pre-Load Checklist

🔍 Apply Filters

"EPOTEC YD 128 Bisphenol-A-(epichlorohydrin) epoxy

25068-38-6

Pre-Load Checklist

Prior Content Type: **Unacceptable**

Acceptable With Special Wash Description:

Applies to this Location: **Global**

No. of loads back a Material's "UnAcceptable Priors" Pertain: **1**

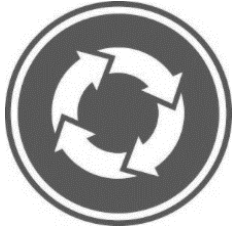
Prior Content Reason: **Mixtures with these materials will result in a temperature and / or pressure increase.**



Together Science and Humanity can Change the World

Engaging Employees for
Impact

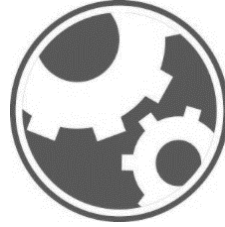
Sparking Sustainable
Innovation



Cultivating Inclusive
Leadership



Developing a Ready
Workforce



Building Resilient Communities

Key Areas of Priority:

Sustainable Innovation

- Prevent leakage, accelerate recycling and advance a circular economy for plastics
- Discover new ways to use Dow products for social good

Inclusive Leadership

- Support inclusive leadership
- Strengthen organizations with the potential to create a more inclusive society

Ready Workforce

- Build a skilled and diverse manufacturing workforce
- Create the next generation of diverse chemist and engineers

Led by Company Ambition. Fueled by Service.

Dow Global Citizenship leverages our science and technology, and activates our employee's skills and passion to create **transformative social impact.**





Seek

Together™