



SAP EHS - Dangerous Goods Management

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EH&S Dangerous Goods Management

1 Purpose

The purpose of this scenario is to demonstrate and facilitate basic functions of SAP PLM EH&S Dangerous Goods Management, which are:

- Maintenance of dangerous-goods-relevant data
- Dangerous goods checks within orders and deliveries
- Creation of the necessary dangerous goods documents

A number of – usually hazardous – substances are classified as so-called dangerous goods when shipped, paint being one of them. The shipment of dangerous goods is regulated by various national and international regulations, depending on the carrier type. Examples include:

- ADR for road transport (in Russia)
- IATA for airfreight
- IMDG for sea transport
- RID for railways (in Russia)

These regulations specify which substances may or may not be transported by the respective means of transport, and under which circumstances (quantity, packaging ...) they are allowed to be transported. Whether or not you can ship your customer's purchase order (for example a certain quantity of paint) on a certain route (for example by airfreight from Germany to Spain) is checked by means of the so-called dangerous goods checks.

To avoid accidents and minimize negative impacts on humans and the environment, certain transport documents such as delivery notes must be produced correctly and kept at hand over the whole duration of the transport. The delivery note contains – besides the standard information on the product and the quantity shipped – additional dangerous-goods-specific information.

For a graphical representation of this scenario including system landscape information refer to the document *Dangerous Goods Management Diagram*.

2 Prerequisites

The scenario is triggered when you are creating a sales order containing materials that are classified as dangerous goods.

The following data has been maintained in the *EH&S specification* database, in the *Materials Management* component of your ERP System, or in the configuration:

- Materials in the material master
Materials that are created by SAP Best Practices for Chemicals (for example CH-6000, CH-6001 and CH-6100). They are used in this scenario, too.
- A customer
We use the customer C-1002 (= Polymers S.A., Barcelona), which is located in Spain.
- Some routes.
A route can consist of a departure country, one or more transit countries, and a destination country. You also have to specify a mode of transport, such as road, sea, or air. We use the baseline routes plus one additional route DG_01 that uses air transport.

Remark: We indirectly also use substances with dangerous-goods-specific properties in the EH&S specification database. The dangerous goods relevant data in the dangerous goods master has previously been transferred from the EH&S specification database (that is from substances) to the dangerous goods master data of the assigned material.

Material to be shipped:

Material CH-6000 = *SAPcolor blue, 10 kg*

Substance correlating to the above material:

Substance D184 = *Blue paint*

Dangerous Goods Classification used for the above substance:

CL-PNT-01 = *classification 1263 (F1, II)*

UN List Substances used in the DG Classification:

Substance	Specific. Type	References	Comment
UN-1263-01	LS_UN_SUB	--	Normalized UN-listed substance reference for UN 1263. Used in DG classification CL_PNT_01 (see above) for regulations ADR, RID, ADNR, IATA_C, IATA_P, IMDG

Example Customers:

- C-1002: Polymer s S:A:, Barcelona

Example Routes:

- YQ0001: Northern route¹
- DG_01: Southern route (air transport)²

2.1 Roles

Use

The following roles must have already been installed to test this scenario in the SAP NetWeaver Business Client (NWBC). The roles in this Business Process Documentation must be assigned to the user or users testing this scenario. You only need these roles if you are using the NWBC interface. You do not need these roles if you are using the standard SAP GUI.

Prerequisites

The business roles have been assigned to the user who is testing this scenario.

Business role	Technical name	Process step
EH&S Clerk	SAP_BPR_EH&S_CLERK-S	Adjust DG Master Data
Sales Administration	SAP_BPR_SALESPERSON-S	Create Sales Order
Warehouse Clerk	SAP_BPR_WAREHOUSESPECIALIST-S	Create Delivery and Delivery Note

¹ Route YQ0001 ('Northern route') uses Sea transport.

² Route DG01 ('Southern route (air transport)') uses air transport.

3 Process Overview Table

Process step	External process reference	Business condition	Business role	Transaction code	Expected results
Adjust DG Master Data			EH&S Clerk	DGP2	
Create Sales Order			Sales Administration	VA01	
Create Delivery			Warehouse Clerk	VL01N	

3.1 Process Overview

SAP PLM EH&S Dangerous Goods Management supports your company in fulfilling the following legal requirements:

1. Maintaining Dangerous Goods data for the shipment of paints as dangerous goods.
2. Doing Dangerous Goods checks (that is checking admissibility of transport) during processing of the following document types:
 - Sales order
 - Delivery
3. Creating a delivery note containing necessary dangerous goods transportation data.

Remarks:

- The system has been set up so that for the above mentioned customer C-1002 located in Spain, route YQ0001 (that is Sea transport) is chosen automatically with shipping condition 'standard'. When changing to shipping condition 'immediately', route DG_01 (that is air transport) is chosen.
- The transport emergency cards (tremcards; Russia regulation), which are also part of the documentation for a dangerous goods transport, have been taken out of this scenario since small and medium business enterprises quite rarely print them themselves but use such from the transport company.

3.2 Scenario Description

The scenario that is presented in this chapter consists of the following steps:

1. Adjusting master data to special needs
 - a. The paint producing company decides for safety reasons, that shipment of their paint 'SAPcolor blue' (= material CH-6000) shall no longer take place via air.
 - b. Therefore the dangerous goods master of material CH-6000 is manually changed to be forbidden for air transport.
2. Creating a sales order
 - a. A customer calls and wants to order 'SAPcolor blue'. Therefore a sales order is created by the sales clerk. The system per default chooses shipping condition 'standard' that results in truck transport.
 - b. The customer tells the sales clerk that it is very urgent and that he needs the paint tomorrow. Therefore the sales clerk changes shipping condition to 'immediately'.

- c. The system chooses air transport to fulfil that request. But when doing the Dangerous Goods checks, they fail due to the fact that 'SAPcolor blue' may not be transported by air (see step 1 above).
 - d. The sales clerk informs his customer that his request cannot be fulfilled and resets the shipping condition to 'standard'.
3. Creating a delivery and delivery note
 - a. From the previously generated sales order, a delivery is created.
 - b. The Dangerous Goods checks are repeated to make sure everything is still okay.
 - c. For the delivery a delivery note is created containing all the relevant Dangerous Goods information for 'SAPcolor blue'.

4 Process Flow

4.1 Adjusting Dangerous Goods Master Data

Use

The purpose of this activity is to adjust the Dangerous Goods master data in a way that material CH-6000 is no longer permitted to be transported through the air. This shows on the one hand side where and how Dangerous Goods data is handled and stored in the system. And on the other hand side it allows for a transportation block in later process steps.

Background: The material *Blue Color* generally used in the SAP Best Practices for Chemicals scenarios is not dangerous enough to be excluded from transportation by law. Therefore we do these manual adoptions here.

Prerequisites

- Material CH-6000 must be present (comes into the system with Building Block 810 – (Delta) Materials Management).
- The dangerous goods master data of CH-6000 must be present, too (has been created in building block 852).

Procedure

1. Access the transaction choosing one of the following navigation options:

Option 1: SAP Graphical User Interface (SAP GUI)

SAP ECC menu	<i>Logistics → Environment, Health and Safety → Dangerous Goods Management → Dangerous Goods Master → Change Dangerous Goods Master Records</i>
Transaction code	DGP2

Option 2: SAP NetWeaver Business Client (SAP NWBC) via business role

Business role	EH&S Clerk (SAP_BPR_EH&S_CLERK-S)
Business role menu	<i>Environment, Health and Safety → Dangerous Goods → Change Dangerous Goods Master Records</i>

2. On the *Dangerous goods Master* screen, enter the required data:

Field name	Description	User action and values	Comment
<i>Material</i>		CH-6000	

3. Choose *Hit List*.
4. Choose the *Classification* tab page.
5. For the following two lines, make the given entries in the Transport not permitted column:

Material	Regulation	Transport not permitted
CH-6000	IATA_C	X
CH-6000	IATA_P	X

6. Save and leave the transaction.

Result

Material CH-6000 has been manually changed to no longer being allowed for air transport (that is, for regulation IATA, neither for cargo (IATA_C) nor for passenger (IATA_P) transport).

4.2 Creating a Sales Order

Use

The purpose of this activity is to create a sales order to show how dangerous goods checks work already in an early phase of the sales process.

The sales clerk accepts an order but as the customer requests fast delivery, he first chooses delivery type IMMEDIATELY. The following Dangerous Goods checks block the order because the material may not be transported via air (which is chosen for the immediate delivery). The sales clerk has to return to STANDARD delivery type again to be able to ship.

Prerequisites

The required master data (for example, articles, prices, conditions, and customers) must be maintained in the system.

Procedure

1. Access the transaction choosing one of the following navigation options:

Option 1: SAP Graphical User Interface (SAP GUI)

SAP ECC menu	<i>Logistics → Sales and Distribution → Sales → Order → Create</i>
Transaction code	VA01

Option 2: SAP NetWeaver Business Client (SAP NWBC) via business role

Business role	Sales Administration (SAP_BPR_SALESPERSON-S)
Business role menu	<i>Sales → Sales Orders → Create Sales Order</i>

2. On the *Create Sales Order* screen, enter the required data:

Field name	Description	User action and values	Comment
<i>Order type</i>		YQOR	Standard order
<i>Sales organization</i>		1000	Sales Org. 1000
<i>Distribution channel</i>		10	Direct Sales
<i>Division</i>		10	Product Division 10

3. Choose *Enter*.

4. On the *Create Standard Order* screen, enter the required data:

Field name	Description	User action and values	Comment
<i>Sold-to party</i>		C-1002	Customer Polymer S.A. in Barcelona
<i>Purch. ord. no.</i>		123/AB-45	Free text or SAP related purchase order number
<i>Req.deliv.date</i>		<Date of tomorrow>	
<i>Material</i>		CH-6000	SAPcolor blue, 10 kg
<i>Order quantity</i>		10	
<i>Sales unit</i>		DR	Drums

5. Choose *Enter*.



In case the delivery date is too early, the flag for multiple schedule lines in the item indicates that the required delivery date cannot be met. The ATP³ situation can be displayed by choosing *Check item availability*. You have to accept the suggestion by choosing *Accept*.

6. Choose *Goto* → *Header* → *Shipping* from the menu.



Note that shipping condition *Standard* has been chosen by the system.

7. On the *Shipping* tab, enter the required data:

Field name	Description	User action and values	Comment
<i>Shipping condition</i>		03 - Immediately	

8. Choose *Enter*.

9. Confirm the dialog box *Redetermine route* (that is, choose *Redetermine*).

10. Choose *Goto* → *Overview* from the menu.



The missing flag for multiple schedule lines in the item (see also step above) indicates that the required delivery date can be met now. The ATP situation can be

³ ATP = Available to promise

displayed by choosing *Check item availability*. You have to accept the suggestion by choosing *Accept*.

11. Choose menu: *Edit* → *Check dangerous goods*
12. The following message appears: *Material may not be transported with this mode of transport category*.
 - If you want to see more details about the checks and their results, then choose *Check log* on the dialog box.
13. Confirm the dialog box by choosing *Continue*.
14. Choose *Goto* → *Header* → *Shipping* from the menu.
15. Change back the shipping condition on the *Shipping* tab.

Field name	Description	User action and values	Comment
<i>Shipping condition</i>		01 - Standard	

16. Choose *Enter*.
17. Confirm the dialog box *Redetermine route*.
18. Choose *Goto* → *Overview* from the menu.
19. If you repeat the dangerous goods checks (see above) then a dialog screen will confirm *DG checks are completed, there are no log entries*. This indicates that from the dangerous goods perspective everything is okay with this order.



When saving, this check is done automatically anyway.

20. Choose *Save*.

Result

A complete sales order has been created in the system. A sales order number has been assigned. The dangerous goods checks have been performed.

4.3 Creating a Standard Delivery and Delivery Note

Use

The purpose of this activity is to create a standard delivery to show how dangerous goods checks work in the delivery and how dangerous goods data is printed on the delivery note.

Procedure

1. Access the transaction choosing one of the following navigation options:

Option 1: SAP Graphical User Interface (SAP GUI)

SAP ECC menu	<i>Logistics</i> → <i>Sales and distribution</i> → <i>Shipping and Transportation</i> → <i>Outbound delivery</i> → <i>Create</i> → <i>Single Document</i> → <i>with Reference to Sales Order</i>
Transaction code	VL01N

Option 2: SAP NetWeaver Business Client (SAP NWBC) via business role

Business role	Warehouse Clerk (SAP_BPR_WAREHOUSE SPECIALIST-S)
Business role menu	<i>Warehouse Management → Shipping → Create Outbound Dlv. w/o Order Reference</i>

- Only for SAP NetWeaver Business Client (SAP NWBC) – choose *With order reference*.
- On the *Create Outbound Delivery with Order Reference* screen, enter the necessary data:

Field name	Description	User action and values	Comment
<i>Shipping point</i>		1000	
<i>Selection date</i>		confirmed delivery date from sales order created	Lookup the confirmed delivery date in the sales order schedule lines
<i>Order</i>		sales order number from previous step	
<i>Delivery type</i>		LF	

- Choose *Enter*
- On the *Create Outbound Delivery: Overview* screen, choose *Picking* tab page, and enter the required data (pick quantity). In case of batch material, choose *Batch split exists* of the delivery item.

Field name	Description	User action and values	Comment
<i>Batch split indicator</i>		Choose Batch split exists	Only needed for batch materials
<i>Picking Quantity</i>		10	

- Choose *Post goods issue* (Shift + F8).



Entering a picking quantity and posting a goods issue are essential for the process as printing/displaying of the delivery note (see following steps) is only possible after goods issue.

- Now you are back on the *Create Outbound Delivery with Order reference* screen. From the menu, choose *Outbound delivery → Display*.
- Now you are back on the *Display Outbound Delivery* screen. From the menu, choose *Outbound delivery → Issue delivery output*.
- In the following dialog box, choose entry YLD0 (= delivery note for Dangerous Goods).
- Choose *Print preview*.

Result

You have created a delivery to ship material(s) classified as dangerous goods to your customer. Basic dangerous goods checks have been performed and required shipping documents have been created.