PoliTo Rocket Team

POLITECNICO DI TORINO

Internal Regulation

Hazardous Materials Management Regulation

Code:			OPS-LGS-SAFETY-001-V1
Subteam:	Operations	**Division:** **Group:**	Logistics
Author(s):	Andrea PANTANO Federica PORTIS	Safety & Launch Manager Safety & Launch Manager	31-03-2023 31-03-2023
Approved by:	Fabio MELONI Luca SANTORO Elena DILORENZO	President & Chief Engineer Chief Technologist Chief Operating Officer	31-03-2023 15-04-2023 03-04-2023

Disclosure

PU	Public	
DT	Disclosable within the Team	•
DS	Disclosable within the Subteam	
DD	Disclosable within the Division	
DG	Disclosable within the Group	
RL	Reserved to the Leads	

Contents

1 Introduction

The purpose of this document is to set a protocol to be followed any time members of the team perform some tasks that expose them to hazardous material. This regulation must be complied with by those who store hazardous materials, those who handle them, and those who work with them; in general, anyone who is exposed to materials that can harm them or create any kind of damage.
The Leads, with the help of the Safety and Launch managers, must make sure this regulation is respected. Responsibility must be reported to the Leads, who are also responsible for ensuring that other team members comply with the regulations. Any member of the team who may need help interpreting this document or who thinks he/she has been exposed to any form of risk related to hazardous material should therefore ask the Lead of his/her section for clarification.

2 Contents

2.1 Definition of hazardous material

The focus of this regulation are the so-called Dangerous Goods (DG), also known as Hazardous Materials (HazMat). Dangerous Goods include flammable, explosive, radioactive, corrosive, oxidizing, asphyxiating, toxic, pathogenic, or allergic materials [1].
Therefore, any material that may fall into these categories must be treated with care.

2.2 Classification

For the team's internal management, Dangerous Goods will be divided into three classes, according to the severity of the damage they can cause to people or the environment.

Class 1 HazMat	Dangerous Goods associated with low risk. Even if handled incorrectly, they won't cause any serious problems. They cannot seriously harm or injure people. They can't damage structures. E.g.: glues, solvants.
Class 2 HazMat	Dangerous Goods associated with medium risk. They may harm people if badly handled. In case of a failure, they could damage the structure. The success of the mission should not be compromised by them. E.g.: Lithium batteries, e-matches.
Class 3 HazMat	Dangerous Good associated with high risk. They may cause severe damage to people's health. In case of a failure, people may be wounded. Can damage structures irreparably. It may cause the failure of the mission. E.g.: black powder, fuel grains.

2.3 Handling standards

The following standards apply to all technical divisions working with power tools and Dangerous Goods.
It does not apply to any operational division unless special operations are conducted in contact with Hazardous Materials (e.g.: a member of the logistics division is in charge of transporting Dangerous Goods). In the case of special operations, the Chief of Operations must ensure that the members involved are aware of their obligation to abide by these rules.

2.3.1 Clearance procedure

Every time a member of the team needs to handle a Dangerous Good, they need to have the authorization to do so.

For the Cavour Subteam, the hazardous materials handling falls into the HSE (Health, Safety, Environment) regulation as indicated in Chapter 8 of the Cavour Subteam Guide. The Subteam Chief Engineer (CE) or the Division Leads (DLs) can directly receive an HSE letter of appointment from the executive manager. As indicated in the Cavour Subteam Guide, the letter of appointment must refer to an internal regulation in order to guarantee the safety of the members and to give a clear indication to the employee. As indicated in the Cavour Subteam Guide, the delegated CE or DLs can delegate the entire responsibility, or a part of that, to an employee by means of another HSE letter of appointment. For example, the Recovery and Manufacturing DL can be appointed to manage all the materials stored in the laboratory. Similarly, the DL can delegate all this responsibility to a member or part of it. For example, a member can be appointed to manage the storage and handling of acids, but not of all other hazardous materials.

All team members, including non-lead members of the team, should know this document and be aware of the classification of the Dangerous Goods, to act as follows:

- **Class 1 HazMat**: no particular acts needed. The team member handling this type of DG should apply his knowledge and common sense to avoid mishaps.
- **Class 2 HazMat**: clearance from the DL is needed to handle this class of DG. The DL may authorize a member to handle Class 2 HazMat only on a specific occurrence or give to a member the clearance to handle Class 2 HazMat whenever necessary, without asking every time, after ensuring that the member has acquired the necessary experience in handling the materials. This second option may be preferable for members of divisions involved in manufacturing, which may frequently require the use of Class 2 HazMat.
- **Class 3 HazMat**: clearance from both the DL and his/her immediate superior, the Subteam Chief Engineer (CE), is needed. The Leads should make sure this clearance is given only to experienced and properly trained members. In particular cases, the President may give a written authorization after having ascertained the necessary competence.

2.3.2 Training

Each member of the team must receive, or prove that they have received in the past, adequate training in the handling of Dangerous Goods, following one (or more) of the following options:

- The DL may train the new member in any way he or she deems appropriate in order to impart the appropriate knowledge.
- The DL may ask the member to prove they are already experienced with the handling of the dangerous materials used, and therefore decide the member doesn't need more training.
- The DL may ask the member to prove that he or she has attended a specific course offered by Politecnico di Torino, which may be considered sufficient to obtain clearance.
- The DL may ask the member to prove to possess a specific certification, which is considered sufficient (e.g.: INPS Safety certificate).

2.3.3 Incident/accident report

In order to report any incidents or accidents, the procedure defined below must be followed.
First, it will be necessary to find out whether the cause of the accident was a failure to comply with internal regulations or whether the accident was caused by something unforeseen.
In order to do so, it will be necessary to fill in the predefined form and contact the Safety and Launch Managers as soon as possible to clarify the causes of the incident.
In this way, if it were necessary to change the regulations, it would be possible to do so quickly and efficiently.
You can request the form to be filled in directly from the DL. In any case, the report must be made within 3 days of the incident occurring, so that any problems can be solved promptly.

2.3.4 Transportation standards

Depending on the category of material, different precautions must be taken when transporting the different HazMat.
In the case of a class 1 HazMat, one must rely on basic transport precautions to ensure that the material is not damaged, but one does not expose oneself to particular risks, common sense remains a must.
For class 2 HazMat, it becomes necessary to follow specific rules for handling the material, since the risks for people and accidental damage are high. It is strongly discouraged to transport these materials without their specific transport equipment and without adequate preparation.
For class 3 HazMats, it will be necessary to scrupulously follow the transport rules for: the necessary equipment, the environmental conditions required for transport (e.g. away from sources of heat, humidity, or electricity) and the correct maneuvers

to be followed.
Note that any team member must always follow existing Italian or International regulations on dangerous goods transportation, by land, sea, or air (e.g. EU regulations, UN regulations, IATA standards...).

2.4 Responsibility

2.4.1 Leads training

The training of the Leads is the responsibility of the Safety and Launch Managers who must adequately train and update, every six months, the Leads so that they can manage the risks of their respective Division. To do this training, it is necessary to know exactly which HazMat categories the New DL handles.
To simplify the training carried out by Safety and Launch managers, a list of HazMats was created for each division. This makes it easier to know exactly what kind of training will be needed for each division.
Leads must be aware of the responsibility they are given when it comes to HazMat management and training of their division members.
Lead training will consist of:

- list of Hazardous Materials managed in their division
- explanation of the different classes of HazMat and the risks involved in each class
- storage regulations for the different HazMats
- rules for the transport of different HazMats
- explanation of how to train division members on HazMat management.

2.4.2 Safety manager consultation

If necessary, it will always be possible to seek the advice or counsel of the Safety and Launch Managers if unforeseen events or situations arise whose handling is not clear.
If members are unsure about the handling of a material or the practices to be followed, they shall contact their DL or the Safety and Launch managers for clarification. These actions should be followed as good practice to avoid incidents or damage.

References

[1] G. Nowacki, C. Krysiuk, and R. Kopczewski. Dangerous goods transport problems in the european union and poland. *the International Journal on Marine Navigation and Safety of Sea Transportation*, 10(1):1, 2016.