U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety
Administration**

1200 New Jersey Avenue, SE
Washington, DC 20590

April 2, 2025

Austin Yang
Manager
AJ Networks
14F, AJ Bldg, 8-9, Jeongui-ro, Songpa-gu
Seoul, Korea 05836

Reference No. 24-0115

Dear Mr. Yang:

This letter is in response to your October 14, 2024 email and subsequent email conversation requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to prototype and low-production run lithium battery packaging requirements in § 173.185(e). Specifically, in your email, you describe a packaging arrangement in which a battery is placed inside of a fiberboard box with polyethylene foam blocks to secure the battery against shifting. The fiberboard box is subsequently surrounded by non-combustible, electrically non-conductive material and placed into an outer packaging.

We have paraphrased and answered your questions as follows:

Q1. Can the packaging requirements in § 173.185(e)(1) for a prototype or low-production run lithium battery be met in the manner described in your letter, that is by surrounding an inner packaging with non-combustible, electrically non-conductive cushioning material?

A1. Yes. In accordance with § 173.185(e)(1), each prototype or low-production run cell or battery must be individually packed in a non-metallic inner packaging, inside an outer packaging, and must be surrounded by cushioning material that is non-combustible and electrically non-conductive, or contained in equipment. The packaging arrangement described in your letter appears to meet the requirements of § 173.185(e), provided the cushioning material prevents shifting of the batteries within the package that may lead to damage and a dangerous condition.

Q2. Is there a registration requirement or authorization process to use performance-oriented packaging (*e.g.*, a 4G fiberboard box) following successful completion of the required tests in Part 178, Subpart M?

A2. No. There is no requirement to register, obtain prior approval from PHMSA, or submit records of successful tests to the Department of Transportation to use a non-bulk

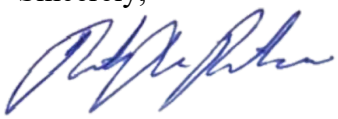
performance-oriented packaging. Test records must be retained and provided to a representative of the Department of Transportation upon request—see § 178.601(l).

Q3. Can a non-bulk performance-oriented packaging that has passed the design tests required in Part 178, Subpart M and has been marked in accordance § 178.503 be used to transport hazardous materials?

A3. Yes. Each performance-oriented packaging must be marked with the name and address or symbol of the manufacturer or the approval agency certifying compliance with Subpart L and Subpart M of Part 178. Symbols, if used, must be registered with the Associate Administrator. This marking certifies that the packaging design complies with the applicable requirements of the HMR.

I hope this information is helpful. Please contact us if we can be of further assistance.

Sincerely,



Dirk Der Kinderen
Chief, Standards Development Branch
Standards and Rulemaking Division

24-0115

Patrick

Jones, Jessie Jane (PHMSA)

From: INFOCNTR (PHMSA)
Sent: Thursday, October 31, 2024 11:24 AM
To: Dodd, Alice (PHMSA)
Cc: Hazmat Interps
Subject: FW: Inquiry about prototype lithium battery packaging - 49 CFR 173.185(e)
Attachments: AJ Networks Company Profile (US)_240910.pdf

Hi Alice,

Please see the below and attached interpretation request.

Let me know if you need anything.

Regards,

-Breanna

From: 양정보/Austin Yang <rangbo@ajnet.co.kr>
Sent: Monday, October 14, 2024 11:48 PM
To: INFOCNTR (PHMSA) <INFOCNTR.INFOCNTR@dot.gov>
Cc: seohj@ajnet.co.kr; '신명근/Phillip Shin' <phillip.shin@ajnet.co.kr>; lcycy214@ajnet.co.kr; swjung28@ajnet.co.kr; '이수길 과장(패키징R&D팀)' <sglee4310@ajnet.co.kr>
Subject: Inquiry about prototype lithium battery packaging - 49 CFR 173.185(e)

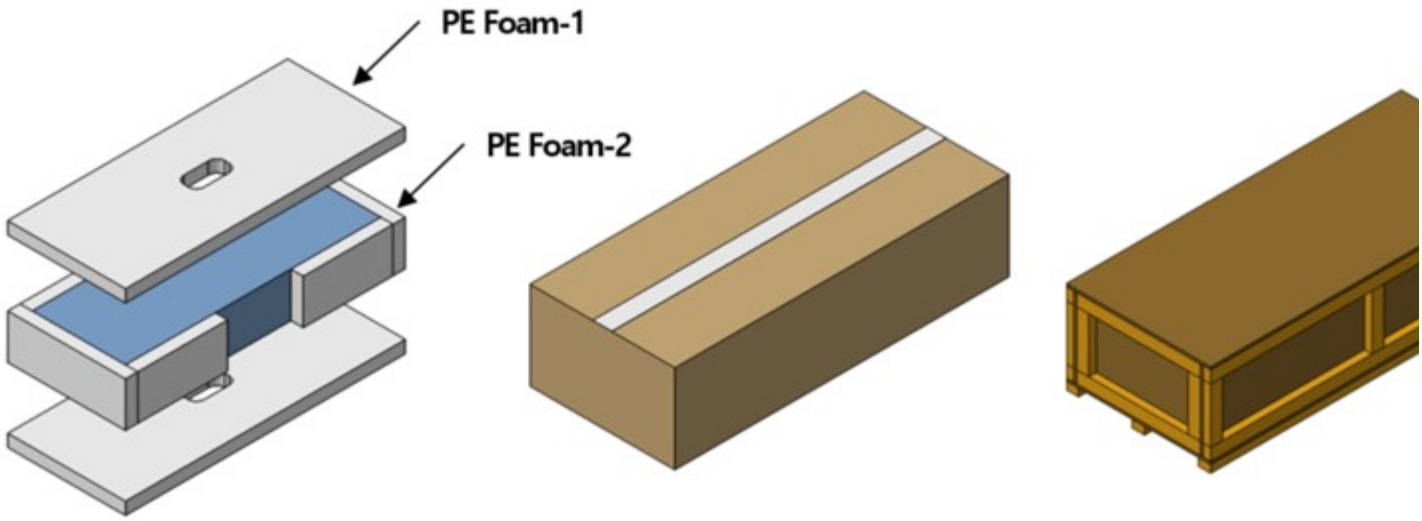
Dear DOT representative,

Hello,
This is Austin Yang from AJ Networks, South Korea.

AJ Networks is one of the largest packaging solution company in South Korea,
doing package supply business with Korean secondary battery manufacturers, plan to set up new US branch in MI.
Please refer to attached company profile of us.

We are curruntly in the compliance check phase in packaging design development with customer,
contacting you because there are some provisions that require advice from the authority.

the product to be packaged is a proto type lithium battery module, we reviewed relevant regulation, 49 CFR 173.185(e)
our initial packaging concept was as below :



1st Concept Development Focus

- Cushioning material : PE Foam
- Inner package : Fiberbaord box (4G)
- Outer Package : Plywood box (4D)
- Net mass of battery : 31kg – over 30kg, 1 battery per outer packaging / 49 CFR 173.185(e)(3)
- Plan to manufacture the package in US

However, through the compliance review session, we found other critical factor to consider, **non-combustible and electrically non-conductive cushioning material** :

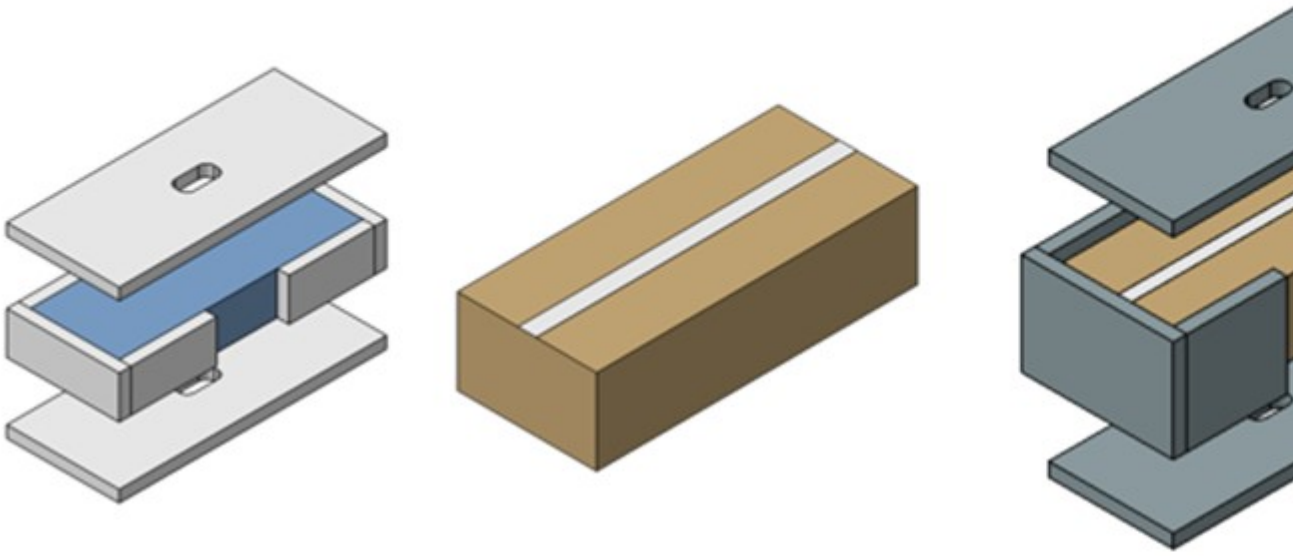
- **49 CFR 173.185(e)(1)**
  Except as provided in paragraph (e)(5) of this section, each cell or battery is individually packed in a non-metallic inner packaging,
  inside an outer packaging, and is surrounded by cushioning material that is non-combustible and electrically non-conductive, or contained in equipment.
  Equipment must be constructed or packaged in a manner as to prevent accidental operation during transport;
- **49 CFR 173.185(e)(2)**
  Appropriate measures shall be taken to minimize the effects of vibration and shocks and prevent shifting of the cells or batteries within the package
  that may lead to damage and a dangerous condition during transport. Cushioning material that is non-combustible and electrically non-conductive **may** be used to meet this requirement;

Here is our questions :

1) **Surrounding Inner package with non-combustible and electrically non-conductive cushioning material in outer package**
   Seeing our 1st concept, could it fulfil the regulation if we surround inner package(fiberboard box) with non-combustible and electrically non-conductive cushioning material?
   -. we would like to keep 1st concept of inner package including PE Foam,
   -. but we will revise outer package design, attaching non-combustible and electrically non-conductive cushioning material inside of the outer package to make cushioning material surrounds inner package.

   Please find below revised concept that upper details are reflected.
   I would appreciate it if you could review this concept meets the relevant provisions.

2nd Concept



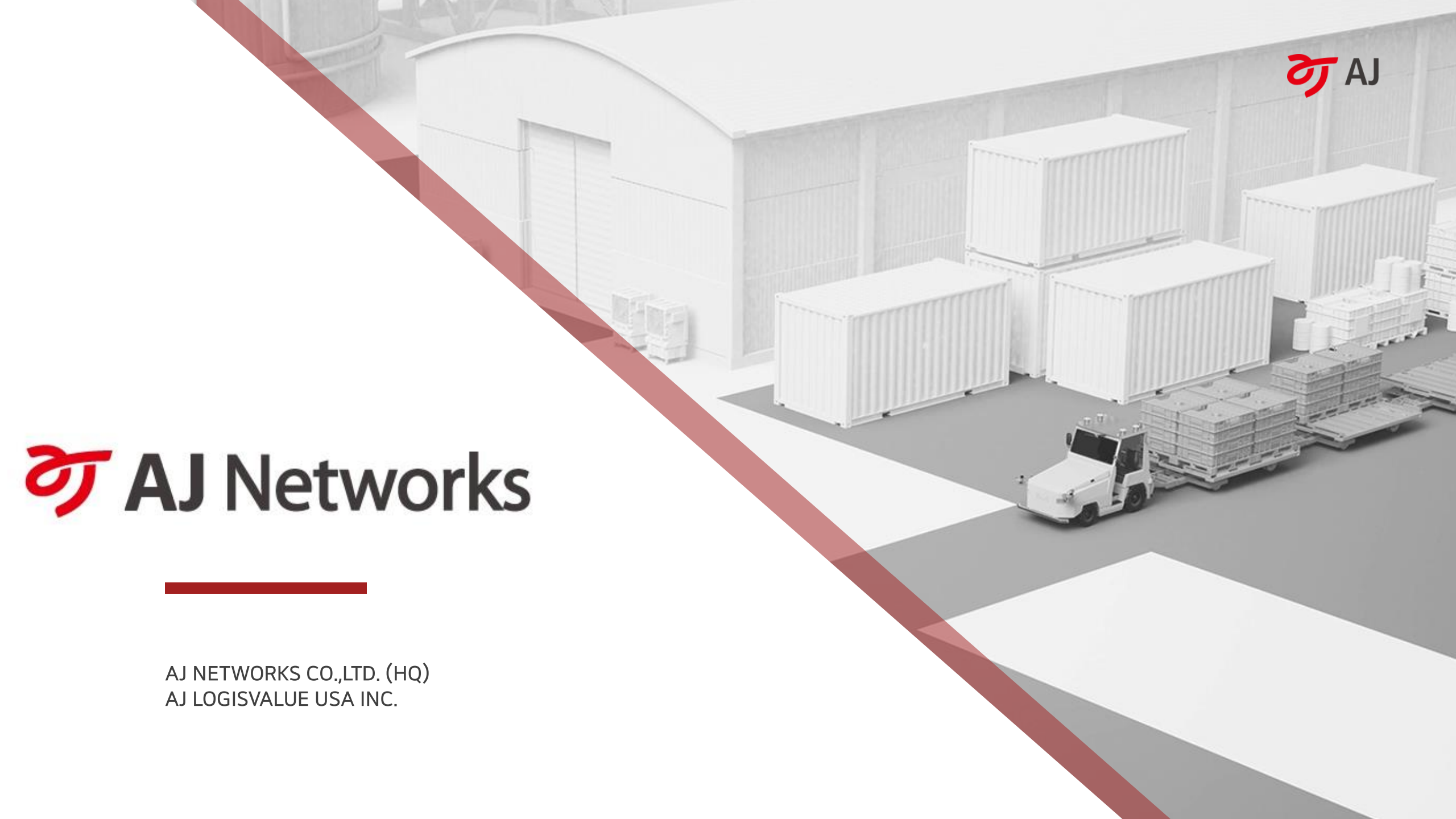
2) **Packaging authorization from DOT**
After the POP testing, if it passes, is there a packaging registration or authorization process to DOT with testing report?
As far as we reviewed, no such regulation exists for 4D and 4G to be authrized from DOT, but periodic testing is mandatory, surely if DOT request test report, it should be provided.
so, only passed testing report and appropriate marking in accordance with regulation 49 CFR 178.503 is requried to use the package?

We would greatly appreciate your insights and feedback.
We look forward to hearing from you.

Thank you.

Best regards,

글로벌사업팀
양정보 / 과장
Global Business Team
Austin Yang / Manager
14F, AJ Bldg, 8-9, Jeongui-ro, Songpa-gu
Seoul, Korea (ZIP: 05836)
Tel (82)10-7225-4829
E-MAIL : rangbo@ajnet.co.kr
ajnetworks.co.kr



AJ Networks

AJ NETWORKS CO.,LTD. (HQ)
AJ LOGISVALUE USA INC.

1. Key Businesses of AJ Networks

AJ Networks is the largest rental company in the Korea, provides diverse business solutions as a **global business partner** to customers.

917 million USD

		Korea M/S	Sales	Quantity
Business	Logis (pallet)	2nd Ranked (32%)	178 M USD	14 M
	AWP & Forklift	1st Ranked (19%)	76 M USD	Approx. 20,000
	IT	1st Ranked (34%)	188 M USD	Approx. 300,000
	Overseas Corporations	USA, Vietnam, Saudi, Poland, Hungary		
Affiliated	AJ Total	Food & Logistics	39 M USD	KSCI franchise, Global Cold Chain (Vietnam)
	AJ Daewon	Facility management	20 M USD	GC management of large leisure Complex AI facility management
	AJ Maintenance Partners	Vehicle management	29 M USD	230 networks of equipment in Korea
	AJ Energy	Oil distribution Management	318 M USD	8 direct gas stations 32 affiliated gas stations
	AJ ICT	IT Outsourcing	33 M USD	Operation of IT Contact Center

Business

Pallet & Logistics equipment

- Standardize and Efficiency of logistics system
- Customized Rental System
- Specialized Pallet
- Providing partnership of development and operation

Construction equipment

- Largest scale in Korea
  (AWP 12,200ea / Forklift 8,200ea/ Tower Crane 23ea)
- A variety of owned license
  (Risk detection and Accident prevention)
- Having national network in Korea

IT Device

- Having the latest IT and mobile devices in Korea
- Having the largest S/W license pool in the rental industry
- Total IT management service capabilities including A/S and IT management

2. Overseas Corporations

AJ USA

- Rental for construction equipment (Asset of 76 billion USD)
- 6 Warehouses of equipment in **California**
- 1 Warehouse of equipment in **Texas**
- 1 Warehouse of equipment in **Georgia**

AJ Vietnam

- Rental for Logistics equipment/IT equipment & Operation Cold Chain Biz. warehouse in Vietnam
- 2 Warehouses of equipment, cold chain in **Hanoi**
- 2 Cold chain warehouses in **Ho Chi Minh**

AJ Arabia

- Rental for Construction equipment (AWP)
- Maintenance support
- 1 Warehouse of equipment in **Dammam**

AJ Poland

- Rental for Logistics equipment/Construction equipment
- Expansion of B2B rental services for secondary battery production bases in Poland/Hungary
- 1 Warehouse of equipment in **Wrocław**

※ Additional overseas corporations will be established (China, Mexico)

3. AJ LogisValue USA

01 Warehouse Specification

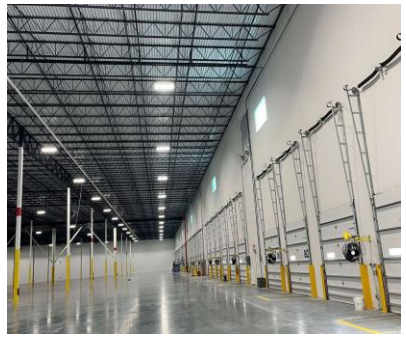
Subject	Detail
Name	AJ LogisValue USA Inc.
Size	198,400SF (W/H 193,993SF + Office 4,407SF) 18,432㎡ (W/H 18,022㎡ + Office 410㎡)
Clear Height	40'
Fire Protection	Spring Cooler
Security	CCTV 24/7 Guard (in&outside of W/H)

02 Location

Address	77 Logistics Dr, Ellabell, GA 31308	
Near by	HMGMA (Hyundai EV)	2.7 miles 5 mins
	Savannah Airport	21miles 25 mins
	Port of Savannah	28miles 30 mins
	Atlanta, GA	225miles 3.5 hrs

03 Facility

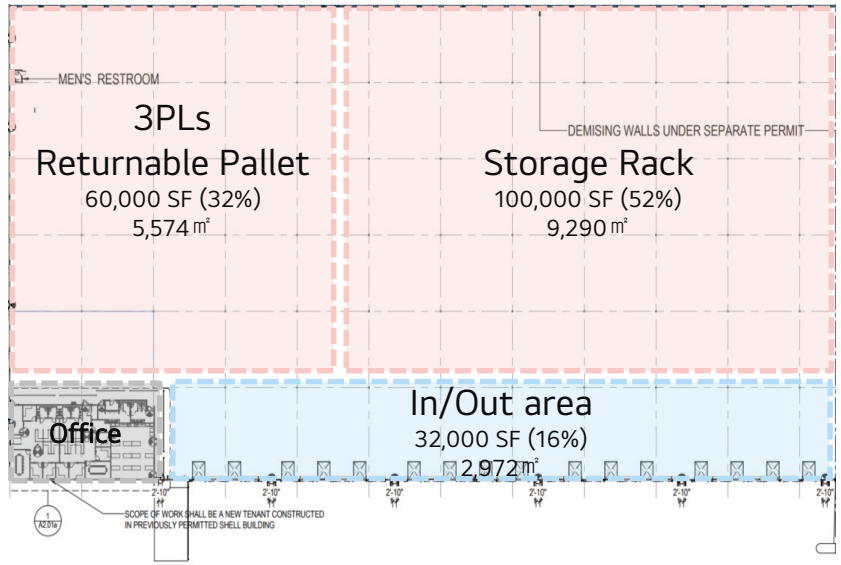
-. Dock System :
34 Loading docks



-. Truck Parking :
40 truck parking space available

-. Forklift :
8 * 2.5Ton (LPG)

04 Floor Plan

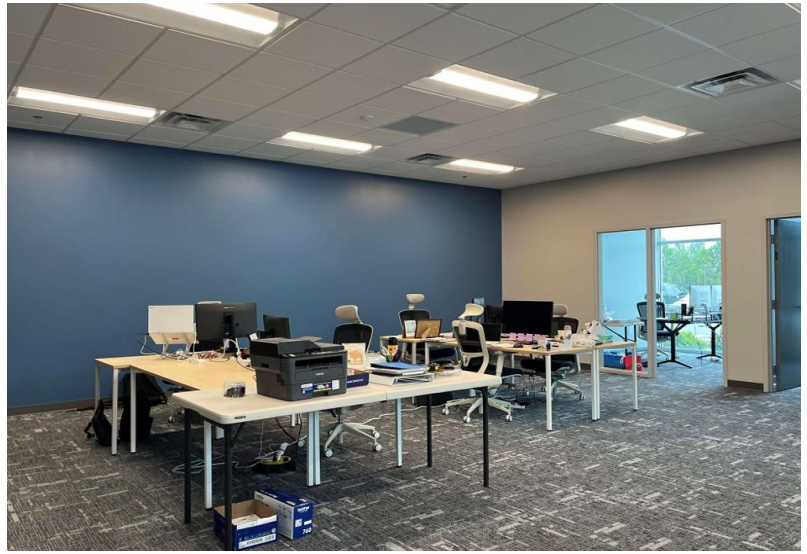


3. AJ LogisValue USA

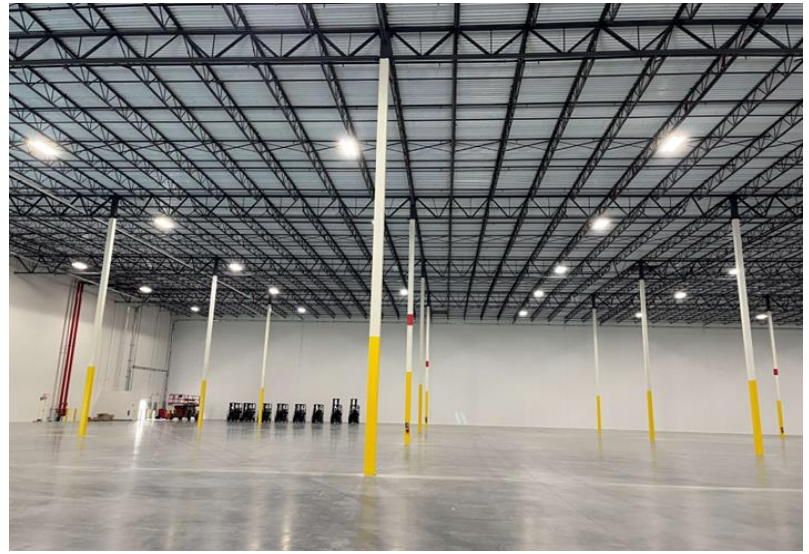
Warehouse Photo

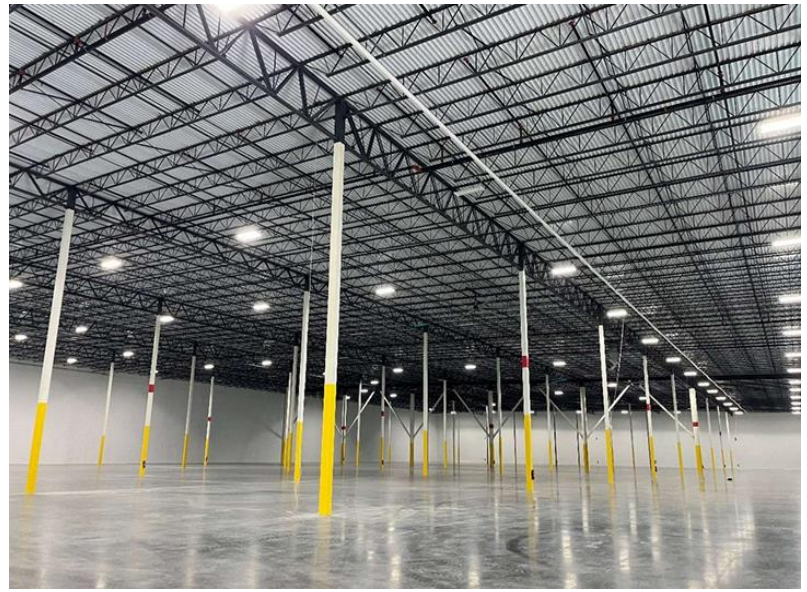
01 Exterior

02 Office



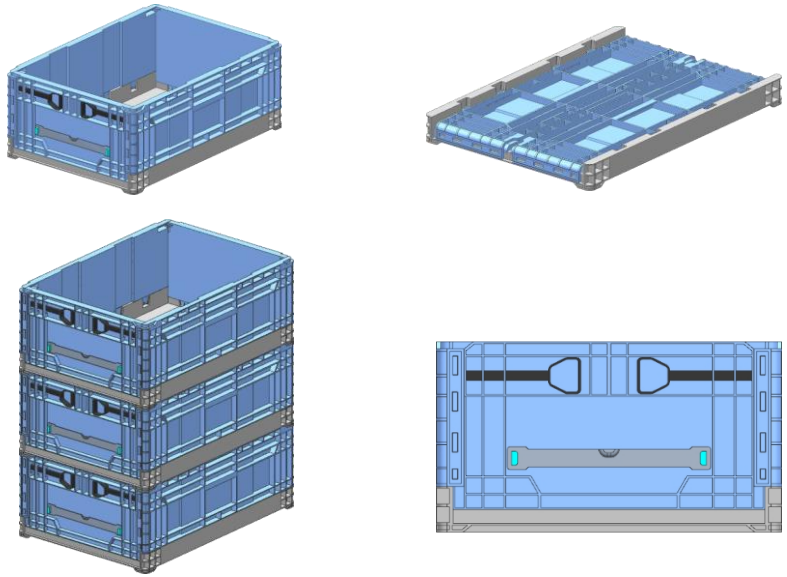
03 Storing space



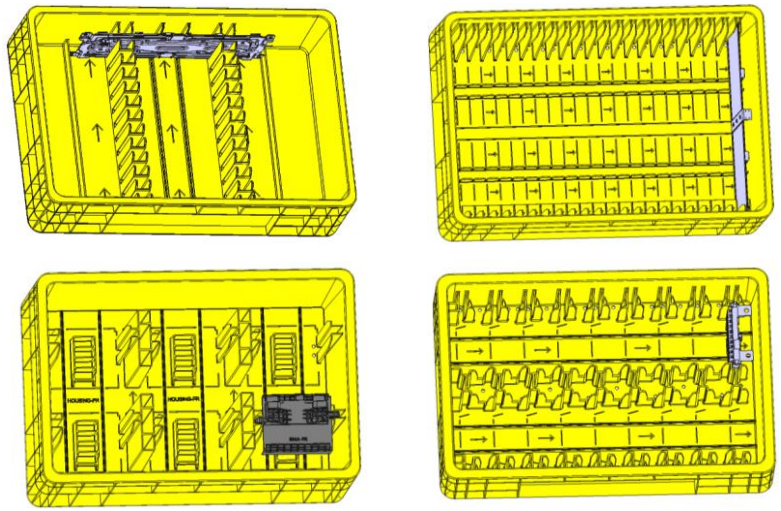


3-1. Packaging solution of AJ USA

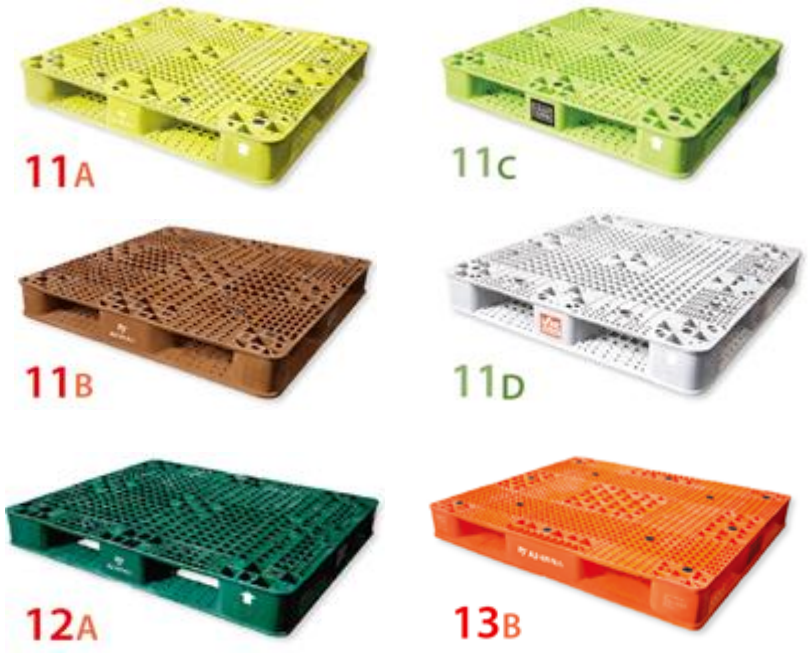
1 KD Box for Hyundai GLOVIS

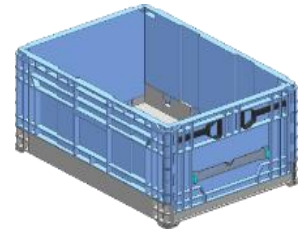
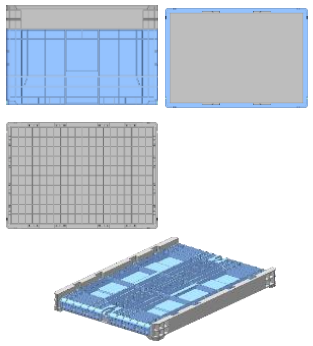
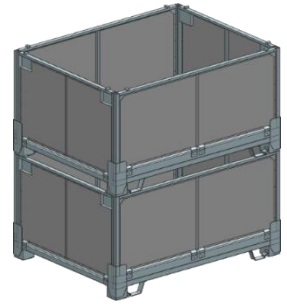
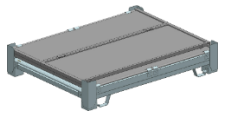
Image	
Purpose	KD Returnable
Effect	• Saving Cost (Waste of disposable packing) • Time efficiency ↑
Progress	Development (with GLOVIS) → Bidding Awarded → **Mass Production**

2 BMA Box for Hyundai MOBIS

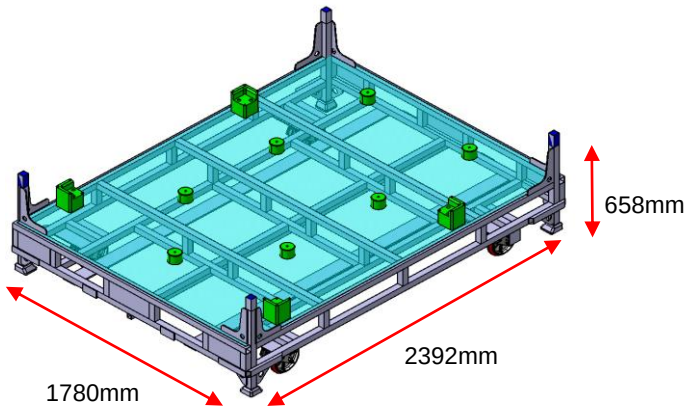
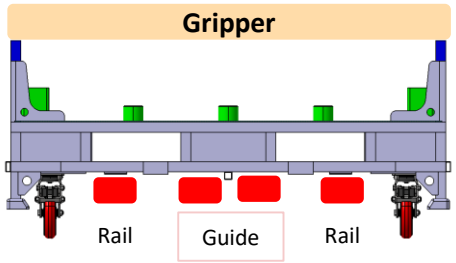
Image	
Purpose	Feeding box for battery process line
Effect	• Suitable boxes to process line
Progress	Development (with MOBIS) → Bidding Awarded → **Mass Production**

4. Packaging product line-up

Name		Returnable Pallet
Product		Packed Products
Material	Inside	Injection PP
	Outside	
Image		

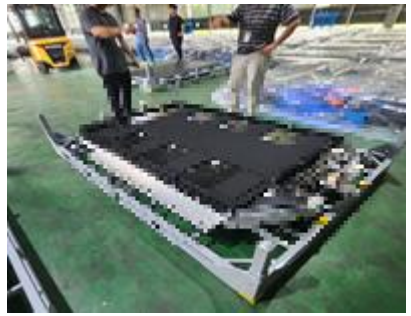
Name		Returnable CKD case		
Product		CKD Products		
Material	Inside	Injection PP	Danpla (PP Corrugated Sheet)	Steel
	Outside			
Image		 Medium packaging Box 	 Large packaging Box (Light Weight) 	 Large packaging Box (heavy & large)  

4. Packaging product line-up

Name		Battery Shipping Rack
Product		Battery Pack (PHEV, EV)
Material	Inside	Injection PP/PE
	Outside	Steel
Image		 

Name		Hazardous Material box
Product		DDR Battery
Material	Inside	Aluminum, Panel, Fire Extinguishing Pocket
	Outside	Danpla (PP Corrugated Sheet)
Image		 <Inside>  <Outside>

4. Packaging product line-up

Name		Battery Storage Rack
Product		Battery Pack (PHEV, EV)
Material	Inside	Steel, Rubber, Urethane
	Outside	
Image		   

Name		Battery Steel Case
Product		Module
Material	Inside	EPP Foam
	Outside	Steel
Image		

5. Packaging cleaning facilities

Operating 43 pallet cleaning facilities in Korea (14 Automatic, 29 Manual)

Thank you

ajnetworks.co.kr