TNASDC amil Nadu Apex Skill Development Centre for Logistics

Name of the student:	Maideen . S	University:	University of madras
College Name:	Thiruthangal Nadar	Mobile number	7397255119
College Code:	1435	E mail Id:	Vipmaideen maideen@gmail.com

instructions:

1. Fill only the Green Coloured cells by Double Clicking on the Cell the following 6 forms

Goods Delivery Challan

Company Name:	Maideen 076 Co Pvt. Ltd
Address:	17/6 Kalamegal St, Perivallur Ch-71
Phone No.:	7397255119
Email:	Maideen076@gmail.com
GSTIN:	33GNPT1107848725

Delivery Challan For:	MR. D. Jagan	Shipping To:	Mr. Karan
Party Name:	Mr. D. Jagan	Shipping Name	krisha
Address:	17/5 kalaimegal st perivallur Ch-71	Address:	81, Gramden St Dalyan
Phone No.:	9094399610	Phone No.:	8189971333
Email:	Jagan@gmail.com	Email:	karan@gmail.com
GSTIN:	33GHOL8787455	GSTIN:	33GH1101248445
Challan No.:	002295	Delivery time:	11.00 A.M
Date:			

Sl No.	Item Name	HSN/SAC Code	Quantity	Unit
1	Rice		10000 kg	
2	Wheat		750 kg	
3	Furniture		1000 kg	
4	Electronic item		750 kg	
Total			21500 kg	

Terms and conditions:		Authorised Signature	D. Jagan
Received By Name: Comment: Date: Signature:	22/09/23 Karan		

Delivered By	
Name:	
Comment:	
Date:	22/09/23
Signature:	D Jayan

Commercial Invoice

Exporter :	MR. Jagan	Invoice No. & Date	002	Exporter Ref: IEC No.:
Consignee :	mr. kiran	Buyer's order no. & Date	14/9/23	
		Other Reference(s)	EXTM Documentation	
		Notify Applicant	xxx	
Country of Origin	India	Country of Destination	Dubai	
Vessel/Flight no.	1772	Terms of Delivery & Payment:	A Payment according to terms & Condit	
Final Destination	Dubai			

Marks & nos	No. & kind of Packages	Description of Goods	H.S Code	Quantity /Nos	Rate/ in Rupees	Amount in Rupees
1557	4	Rice Wheat Juicinters Electronic		2,500	1200,000	1,200,000
				Less Discount	1,20,000	1,20,000
				Total	10,80,000	1,80,000
				Freight		1,80,000

Amount Chargeable (in words)	Ten Lakhs eighty Thousand 1000
Total Net Weight	
Total Gross Weight	
Total Quantity	
GST Registration No.	33BGTHO1 8787453

We hereby Certify that Merchandise covered under the invoice are of India origin

We undertake to abide by provisions of Foreign Exchange Management Act, 1999

As amended by time to time, including realization/repatriation of foreign exchange to or from India

We intend to claim rewards under merchandise exports from India Scheme (MIES)

End use details: GNX200 – For commercial assembly or processing (for Manufacture / actual case)

LUT BOND NO. ARN NUMBER

DECLARATION:

WE DECLARE THAT THIS INVOICE SHOWS THE ACTUAL PRICE OF THE GOODS DESCRIBED &

THAT ALL PARTICULARS ARE TRUE AND CORRECT

Jagan

AUTHORISED SIGNATORY

Certificate of Origin

GOODS CONSIGNED FROM (Exporter's Business Name, Address, Country)	Reference No.
Mr Jagan (Remiharis (opvt,Ltd) no1715 kalaimagal pare vallur Chd-71	
GOODS CONSIGNED TO (Consignee's Name Address, Country)	**Certificate of origin (Non Preferential)** (Combined declaration and certificate) issued in India
Mr. Basha no15, Garden, Dubai	
Mode of Transport and Route	Shipping → India to malaysia (Water way)

Item Number	Marks and numbers of Packages	Number and kind of packages description of goods	Origin criteria	Gross weight or other quantity	Number and date of Invoices
4	4	4	India		0012

Certification

It is hereby certified, on the basis of control carried out, that the declaration by the exporter is correct

Place and date, signature and stamp of Authorised signatory

Jagan (India)

Declaration by the exporter

The undersigned hereby declares that the above details and statements are correct, that all the goods were produced in India and that they comply with the origin requirements for exports to

(Rice, wheat, furniture Electronicitem)

(Importing Country)

Dufai

Place & date, signature & stamp of Authorised signatory

Export Declaration Form

EXPORTER'S NAME & ADDRESS:		SHIPPING BILL NO:	
D. Jagan 17/5 kalaimagal st paravallur ch-171		DATE :	12/09/23
TEL NO:	254381		
FAX NO:	17035		
		AWB NO :	
CONSIGNEE'S NAME & ADDRESS:		MARKS & NOS.	4
D karam (Dejai)			
TEL NO:-	8872717120		
H/P :-	1		

NO. OF PACKAGES	DESCRIPTION	QUANTITY	RATE	VALUE
4	Goods		10,80,000	10,80,000

	Value Declared for Custom Purpose:	According to term Condition			
	Country of Origin :		Total:	1,980,000	

International Trade Simulation Challan

Company Name:	moideen 076Co PVT. ltd	Company logo
Address:	17/5 kabiranagal st pruthvion (6-7)	
Phone No.:	7397255119	
Email:	moideen076@gmail.com	
GSTIN:	33 GPT 1107848725	

Delivery Challan For:		Shipping To:	Dubai
Importer Name:	MR. Karan	Exporter Name	Jagan
Address:	81, Garden St, malaysia	Address:	
Phone No.:	8913975 2987	Phone No.:	8909435 9610
Email:	karan0809@gmail.com	Email:	moideen076@gmail.com
Pan No. :	xxx	Pan No. :	xxx
Importer ID :	xxx	Exporter ID :	xxx
Challan No.:	xxx	Delivery time:	11:00 A.M
Date:	15/9/23		

Sl No.	Product Name	Code	Quantity	Unit
1	Rice	1	700	xxx
2	Wheat	2	300	xxx
3	Furniture	3	1000	xxx
	Total		2000	

Terms and conditions:	Goods are ditites it Corect time	Authorised Signature	Jagan

Recieved By Name: Comment: Date: Signature:	karan 15/9/23 karan
Delivered By Name: Comment: Date: Signature:	Japan 14/9/23 Japan

TNASDC for Logistics

TN APEX SKILL DEVELOPMENT CENTRE FOR LOGISTICS

College Name: THIRUTHANGALNADAR COLLEGE	College Code: 1435
University Name: MADRAS UNIVERSITY	University Code:
Date: 21/09/23	Name of the Candidate: VASANTHA Priya - M
Department: B.COM[A/F]	College ID/ Roll No.: 21BCOMAF03
Contact No.: 8056193817	e-mail ID: Vasanthapriya 20vashu@gmail.com

OPERATIONAL LOGISTICS - ASSIGNMENT ON CASE OBSERVATIONS

Topic of Case Observation: EXIM Documentation for freight forwarding

INVOICE

EXPORTER: Panda collectors LLC, Bengaluru, Karnataka, India		INVOICE NO. & DATE: 0001 21/09/23	EXPORTER REF. IEC NO:
		BUYER'S ORDER NO. & DATE: 31427602E4 20-9-23	
		OTHER REFERENCE(S): -	
CONSIGNEE: Beehive LTD, Dallas, Texas, USA		NOTIFY APPLICANT: SAME AS CONSIGNER	
		COUNTRY OF ORIGIN OF GOODS: INDIA	COUNTRY OF FINAL DESTINATION:
PRE-CARRIAGE BY: consignes	PLACE OF RECEIPT: Karnataka, India	TERMS OF DELIVERY & PAYMENT:	
VESSEL/FLIGHT NO.: MAERIR, DENVER	PORT OF LOADING: Karnataka, India		
PORT OF DISCHARGE:	FINAL DESTINATION: Dallas, Texas, USA		

Marks & Nos.	No. & Kind of Packages	Description of Goods	HS Code	Quantity / NOS	Rate / USD	Amount / USD CFR
CONT: SEAL MAK00A09 ML.AC3608	40HC FCL General	SAID to contain Shipper's Load, stack cont. Bottled honey 1.X40HC containers 800 castone total gross weight 18144	04090000	800 castons	US070 Pascosta	
				LESS: DISCOUNT		
				TOTAL		56000
				FREIGHT		1200
						57200
					TOTAL CFR USD	

AMOUNT CHARGEABLE (IN WORDS): USD FIFTY SEVEN THOUSAND Two Hundred only

TOTAL NETT WEIGHT: 184400. 1cas

TOTAL GROSS WEIGHT: 19,044.00 12cas

TOTAL QUANTITY:

GST Registration No. = A2BC PNNA1Z4

We hereby certify that merchandise covered under the invoice are of India origin.
We undertake to abide by provisions of Foreign Exchange Management Act, 1999,
as amended from time to time, including realization / repatriation of foreign exchange to or from India.
We Intend To Claim Rewards Under Merchandise Exports From India Scheme (MEIS).
End Use Details. GNX200 - For Commercial Assembly or processing (for Manufacture / Actual Case)
LUT BOND NO. ARN NUMBER

DECLARATION:
WE DECLARE THAT THIS INVOICE SHOWS THE ACTUAL PRICE OF THE GOODS DESCRIBED & THAT ALL PARTICULARS ARE TRUE & CORRECT.

FOR
[signature]
AUTHORISED SIGNATORY

TNASDC for Logistics

TN APEX SKILL DEVELOPMENT CENTRE FOR LOGISTICS

College Name: Thiruthangal Nadar College	College Code: 1435
University Name: Madras University	University Code:
Date: 20/9/2023 Name of the Candidate: V. Renuka Devi	
Department: B.COM (Accounting & Finance)	College ID/ Roll No.: 21BCOMAF11
Contact No.: 9345692373	e-mail ID: renukad829@gmail.com

OPERATIONAL LOGISTICS - ASSIGNMENT ON CASE OBSERVATIONS

Topic of Case Observation: Freight forwarding office activities are field activities and verification by GST invoice and e-way bills.

Case 3:-

Shipping goods to international markets involves several tasks. Business houses may have their in house arrangements to ship goods abroad or they may rely on freight forwarders to do this for them, they would also prefer to handle non core activities such as packing, freight forwarding, etc.

In a freight forwarding company like GST office activities related to document ~~ation~~ management are crucial to ensure smooth international shipment document collection gather necessary shipping documents from various sources, including invoice, bills of sources of lading. Export licenses and certificates of origin. Data entry from collected documents into the company's database or shipping software to create electronic records of shipments. prepare and manage customs-related documents, such as import/Export declarations, to ensure compliance with international regulations.

TNASDC for Logistics

TN APEX SKILL DEVELOPMENT CENTRE FOR LOGISTICS

College Name:	Thiruthangal nadar college	College Code:	1435
University Name:	university of madras	University Code:	
Date:	22/9/2023	Name of the Candidate:	T. Jayamani Kandan
Department:	Commerce (General)	College ID/ Roll No.:	312113191
Contact No.:	7305414404	e-mail ID:	JKandan@gmail.com

OPERATIONAL LOGISTICS - ASSIGNMENT ON CASE OBSERVATIONS

Topic of Case Observation: unit - 5

compliance to Health, Safety, security Norms and Ethics

1, Importance of compliance with health, safety :-

compliance with health, safety and security norms is critical in handling hazardous materials to minimize risks to personnel, the environment, and Public Safety. The company should ensure that employees are trained in handling hazardous materials and are aware of safety protocols. They Should implement proper storage, labeling and packaging procedures for hazardous materials, following relevant regulations and guidelines.

2, Importance of compliance with security norms

Compliance with security norms is vitual to ensuring cargo security in freight forwarding operations. The company should implement measures such as strict access control to cargo handling areas, screening and inspection procedures, and the use of tamper-evident seal and locks.

TNASDC for Logistics

TN APEX SKILL DEVELOPMENT CENTRE FOR LOGISTICS

College Name:	Thiruthangal Nadar College	College Code:	1435
University Name:	University of Madras	University Code:	
Date:	21/9/2023	Name of the Candidate:	T. Jayamanikandan
Department:	Commerce (General)	College ID/ Roll No.:	312113191
Contact No.:	7305414404	e-mail ID:	Jkandan15@gmail.com

OPERATIONAL LOGISTICS - ASSIGNMENT ON CASE OBSERVATIONS

Topic of Case Observation: Unit - 4

Cargo movement - Planning, Arranging and Transhipment

1, Cargo movement planning :-

Cargo movement planning for time-sensitive delivery involves careful coordination and planning by the freight company. They must consider factors such as the nature of the goods, transit times, transportation modes and any necessary temperature-controlled environments. The freight forwarder plans the most efficient routes, schedules appropriate transportation modes, and selects carriers capable of meeting the time requirement.

2, Handling and transporting oversized shipment :-

Cargo arrangement for oversized shipments requires specialized knowledge and expertise. The freight forwarder assesses the demensions, weight, and specific requirements of the oversized cargo. They plan the most suitable equipment, such as flated trailers, heavy-lift cranes, or low loaders, for safe loading, securing and transportation.

TNASDC for Logistics

TN APEX SKILL DEVELOPMENT CENTRE FOR LOGISTICS

College Name: Thiruthangal nadar college	College Code: 1435
University Name: university of madras	University Code:
Date: 20/09/2023	Name of the Candidate: T. Jayamanikandan
Department: Commerce (General)	College ID/ Roll No.: 312113191
Contact No.: 7305414404	e-mail ID: Jkandan15@gmail.com

OPERATIONAL LOGISTICS - ASSIGNMENT ON CASE OBSERVATIONS

Topic of Case Observation:

Case study: 1 and 5 (unit-2)

1, Bill of landing:

A Bill of landing (B/L) is a crucial document in EXIM documentation for freight forwarding. It serves as a contract of carriage, receipt of goods, evidence of title. The B/L should include information such as shipper's and consignee's details, description of goods, marks and numbers, and the terms and condition of carriage. It serves as proof of Shipment and provides legal protection for both the Shipper and the carrier. The BIL is required for customs clearance, serves as a document of title and is necessary for initiating the release of goods at the destination port.

5, Accurate packing lists are crucial in EXIM documentation for freight forwarding. The packing list provides detailed information about the contents of each package or container being shipped.

TNASDC for Logistics

TN APEX SKILL DEVELOPMENT CENTRE FOR LOGISTICS

College Name: Thiruthangal Nadar College	College Code: 1435
University Name: University of madras	University Code:
Date: 21/9/2023	Name of the Candidate: T. Jayamanikandan
Department: Commerce (General)	College ID/ Roll No.: 312113191
Contact No.: 7305414404	e-mail ID: Jkandan15@gmail.com

OPERATIONAL LOGISTICS - ASSIGNMENT ON CASE OBSERVATIONS

Topic of Case Observation:

Case study: freight forwarding office activities and field activities.

1, Documentation management :-

Office activities related to documentation management in freight forwarding include receiving and reviewing shipping instructions, preparing and verifying required documentation such as bills of loading, commercial invoices, export declaration, and certificates of origin. Additionally, office staff coordinate with customers, suppliers and carriers to ensure all necessary documents are obtained and properly filed. They also maintain records, handle data entry and archiving, and liaise with regulatory authorities for compliance purposes.

2, Cargo consolidation :-

Field activities related to cargo consulidation in freight forwarding include receiveg goods from multiple suppliers and inspecting them for quality and quantity. field staff coordinate the loading of different shipments into containers or transport units, and secure packing.

EV Battery Management

University Name: Madras University

Student Name: Naveen M

College Name: Thiruthangal Nadar College

NM ID: unm143521BSCCHE09

Electric Vehicle Safety Features: Explore safety features specific to electric vehicles, crash avoidance technology, and emergency response protocols

Electric Vehicle Safety Features:

- **Battery Management Systems (BMS)**
- **Structural Integrity**
- **Low Center of Gravity**
- **Crashworthiness**
- **Battery Thermal Management**

1.Battery Management Systems (BMS):

1. BMS monitors the health, temperature, and state of charge of the battery pack.
2. It prevents overcharging, deep discharging, and thermal runaway, ensuring battery safety.

2.Structural Integrity:

1. EVs are designed with strong structural integrity to protect the battery pack during collisions.
2. Many EVs use a skateboard-style chassis, with the battery pack forming a low center of gravity for enhanced stability and safety.

3.Low Center of Gravity:

1.The placement of heavy battery packs in the floor of the vehicle results in a lower center of gravity, reducing the risk of rollovers and improving handling.

4.Crashworthiness:

1. EVs are engineered with advanced crumple zones and reinforced passenger compartments to absorb and distribute crash forces away from occupants.

5.Battery Thermal Management:

1. Thermal management systems regulate the temperature of the battery pack to prevent overheating, which can lead to fires or thermal runaway.
2. Liquid cooling or air cooling systems are commonly employed to maintain optimal battery temperature.

Crash Avoidance Technology:

- **Collision Warning Systems**
- **Lane Departure Warning**
- **Blind Spot Detection**
- **Adaptive Cruise Control**
- **Automatic Parking Assistance**

- **Collision Warning Systems**:
  - Forward collision warning systems use sensors to detect potential collisions and alert the driver to take evasive action.
  - Some systems include automatic emergency braking, which can apply the brakes to mitigate or avoid a collision.
- **Lane Departure Warning**:
  - Lane departure warning systems use cameras or sensors to detect unintended lane departures and alert the driver to steer back into the lane.
- **Blind Spot Detection**:
  - Blind spot detection systems monitor the vehicle's blind spots and provide visual or audible alerts if a vehicle is detected in adjacent lanes.
- **Adaptive Cruise Control**:
  - Adaptive cruise control adjusts the vehicle's speed to maintain a safe following distance from the vehicle ahead, reducing the risk of rear-end collisions.
- **Automatic Parking Assistance**:
  - Automatic parking systems use sensors and cameras to assist the driver in parallel or perpendicular parking maneuvers, reducing the risk of collisions with obstacles or other vehicles.

Emergency Response Protocols

- **Emergency Shut-off Procedures**
- **Vehicle Identification**
- **Battery Isolation**
- **Collaboration with Manufacturers**
- **Public Awareness Campaigns**

- **Emergency Shut-off Procedures**:
  - Emergency responders are trained to locate and deactivate high-voltage systems in EVs to mitigate the risk of electric shock or fire during rescue operations.
- **Vehicle Identification**:
  - Emergency responders are trained to identify EVs and locate relevant safety information, such as the location of the battery pack and high-voltage components.
- **Battery Isolation**:
  - Specialized tools and procedures are used to isolate the high-voltage battery pack to prevent electrical hazards during extrication or firefighting

- **Collaboration with Manufacturers**:
  - Emergency responders often collaborate with EV manufacturers to develop specialized training programs and protocols for handling EV-related incidents.
- **Public Awareness Campaigns**:
  - Public awareness campaigns are conducted to educate drivers and emergency responders about the unique safety features and protocols associated with electric vehicles.

THANK YOU

Name :Naveen M
Email Id : naveennatraj2000@gmail.com
Phone no:6379944243

EV Battery Management

University Name: Madras University

Student Name: R. Nishanth

College Name: Thiruthangal nadar college

NM ID: unm143521BSCCHE01

Importance of Battery Performance Testing

- Batteries are fundamental components in various devices and systems, powering everything from smartphones to electric vehicles.
- The performance of batteries directly impacts the functionality, efficiency, and safety of these devices and systems.

    - **Quality Assurance**
    - **Safety Assurance**
    - **Optimization of Design and Manufacturing**
    - **Efficiency and Sustainability**
    - **Cost Reduction**
    - **Innovation and Advancement**

Quality Assurance:

- Battery performance testing ensures that batteries meet specified standards and perform reliably under various conditions.
- It helps manufacturers maintain quality control and deliver products that meet consumer expectations.

Safety Assurance:

- Testing identifies potential safety risks such as overheating, leakage, or unexpected failures, reducing the likelihood of accidents or damage.
- Ensures compliance with safety regulations and standards, enhancing user safety.

Optimization of Design and Manufacturing:

- Data from performance testing informs the design and manufacturing processes, enabling improvements in battery efficiency, lifespan, and reliability.

- It facilitates optimization of materials, construction techniques, and production processes.

Efficiency and Sustainability:

- Testing enables evaluation of energy efficiency and environmental impact, contributing to the development of more sustainable battery technologies.

- Identifies opportunities for reducing energy consumption, enhancing resource utilization, and minimizing environmental footprin

Cost Reduction:

- Early detection of performance issues through testing helps prevent costly recalls, warranty claims, and product failures.

- Optimization of battery performance leads to longer lifespan, reduced maintenance costs, and improved return on investment.

Innovation and Advancement:

- Performance testing drives innovation in battery technology by identifying limitations and areas for improvement.

- It fosters research and development efforts aimed at enhancing energy density, power output, and cycle life.

Battery Performance Parameters

- Capacity (mAh, Ah)
- Voltage (V)
- Internal resistance (ohms)
- Charge and discharge rate (C-rate)
- Temperature (°C)
- Cycle life
- Efficiency (%)
- Energy density (Wh/kg)
- Power density (W/kg)
- Voltage stability under load

Testing Setup

- Types of Batteries Tested
- Test Environment
- Instruments Used
- Safety Precautions

Types of Batteries Tested:

- Lithium-ion
- Lead-acid
- Nickel-metal hydride
- [Any other relevant battery types]

Test Environment

Temperature-Controlled Chamber:

- Maintain consistent temperature for reliable testing results.
- Prevent temperature fluctuations that could impact battery performance.

Ambient Conditions:

- Consideration of real-world operating conditions for comprehensive testing
- Mimic environmental factors encountered during actual usage.

Instruments Used:

1. Data Logger:

    - Records battery parameters such as voltage, current, temperature, and capacity.
    - Provides accurate and detailed data for analysis and evaluation.
2. Multimeter:

    - Measures voltage, current, and resistance during testing.
    - Essential for real-time monitoring and troubleshooting.
3. Charge-Discharge Analyzer:

    - Controls charging and discharging processes with precision.
    - Enables standardized testing procedures and accurate data collection.

4. [Any other relevant instruments]

Safety Precautions:

1. Ventilation:
   - Ensure proper ventilation to dissipate heat and gases emitted during testing.
   - Prevent accumulation of potentially hazardous fumes.

2. Protective Gear:

   - Use appropriate personal protective equipment (PPE) such as gloves and goggles.
   - Minimize the risk of exposure to chemicals or electrical hazards.

3. Fire Suppression Systems:

   - Install fire extinguishers or other fire suppression systems in the testing area.
   - Mitigate the risk of fires caused by battery malfunction or overheating.

4. Emergency Shutdown Procedures:

   - Establish protocols for shutting down equipment in case of emergencies.
   - Ensure quick response to any safety incidents or equipment failures.

Methodology for Battery Performance Testing

- Charge-discharge cycles
- Constant current (CC), constant voltage (CV) charging
- Rest periods between cycles
- Temperature control during testing
- Calibration procedures for instruments

Charge-Discharge Cycles:

- Conduct repeated charge and discharge cycles to evaluate battery performance over time.
- Each cycle consists of charging the battery to its maximum capacity and then discharging it under controlled conditions.
- Monitor key parameters such as voltage, current, capacity, and temperature throughout the cycle.

Constant Current (CC), Constant Voltage (CV) Charging:

- Implement CC-CV charging method to ensure proper and controlled charging of the battery.

- In the CC phase, deliver a constant current to the battery until it reaches a predetermined voltage.

- Switch to the CV phase, where the voltage is held constant while the current decreases until the battery is fully charged.

Rest Periods Between Cycles:

- Include rest periods between charge and discharge cycles to allow the battery to stabilize.
- Rest periods minimize the impact of transient effects and ensure more accurate measurements.
- Monitor battery parameters during rest periods to capture any changes or deviations.

Temperature Control During Testing:

- Maintain temperature control throughout the testing process to simulate real-world operating conditions.
- Use a temperature-controlled chamber to regulate the environment and prevent temperature fluctuations.
- Monitor battery temperature closely during charge and discharge cycles to assess its impact on performance.

Calibration Procedures for Instruments:

- Perform regular calibration of testing instruments to ensure accuracy and reliability of measurements.
- Follow manufacturer guidelines for calibration procedures and frequency.
- Conduct calibration checks before and after testing sessions to verify instrument accuracy.

Data Collection Process during Battery Testing

- Frequency of data collection
- Parameters recorded at each interval
- Data logging techniques used
- Ensuring accuracy and reliability of data

Frequency of Data Collection:

- Data is collected at regular intervals throughout the testing process to capture changes in battery performance over time.

- The frequency of data collection depends on the duration of the test, the expected rate of change in battery parameters, and the desired level of detail.

- Common intervals range from seconds to minutes during charge and discharge cycles, with additional data recorded during rest periods.

Parameters Recorded at Each Interval:

- Voltage: Measure the electrical potential across the battery terminals.
- Current: Monitor the flow of electric charge into or out of the battery.
- Temperature: Track variations in battery temperature during testing.
- Capacity: Calculate the amount of charge stored or delivered by the battery.
- Internal Resistance: Assess the resistance to current flow within the battery.
- State of Charge (SoC): Determine the percentage of available energy remaining in the battery.
- State of Health (SoH): Evaluate the overall condition and performance of the battery.

Data Logging Techniques Used:

- Automated Data Logging: Utilize software-controlled systems to automatically record data from testing instruments.
- Manual Data Logging: Alternatively, data may be manually recorded by operators at predetermined intervals.
- Real-time Monitoring: Implement real-time data monitoring to track battery behavior during testing and identify anomalies or trends.

Ensuring Accuracy and Reliability of Data:

- Instrument Calibration: Calibrate testing instruments regularly to maintain accuracy and consistency.
- Quality Control Checks: Perform quality control checks to verify the reliability of data collected.
- Redundancy Measures: Implement redundancy in data collection systems to minimize the risk of data loss or corruption.
- Error Handling Procedures: Establish protocols for handling errors or discrepancies in data to ensure accurate analysis.

Data Analysis Techniques in Battery Performance Testing

- Graphical analysis (charge-discharge curves, voltage vs. time, etc.)
- Statistical analysis (mean, median, standard deviation, etc.)
- Comparison with manufacturer specifications
- Trend analysis over multiple cycles

Graphical Analysis:

- Charge-Discharge Curves: Plot voltage vs. time to visualize the battery's behavior during charging and discharging cycles.

- Voltage vs. Time: Graph voltage over time to identify trends, fluctuations, and voltage stability.

- Capacity vs. Cycle Number: Track changes in battery capacity over multiple charge-discharge cycles to assess degradation.

Statistical Analysis:

- Mean: Calculate the average value of battery parameters such as voltage, current, and capacity.

- Median: Determine the middle value in a dataset to identify central tendencies.

- Standard Deviation: Measure the dispersion of data points around the mean, indicating variability in battery performance.

Comparison with Manufacturer Specifications:

- Compare measured parameters with specifications provided by battery manufacturers.
- Evaluate whether the battery meets expected performance criteria in terms of capacity, voltage, efficiency, etc.
- Identify deviations from specifications and assess their impact on battery performance and usability.

Trend Analysis Over Multiple Cycles:

- Analyze trends in battery behavior over numerous charge-discharge cycles.
- Identify patterns of degradation or improvement in capacity, voltage, and other performance metrics.
- Assess the consistency and reliability of battery performance over time.

THANK YOU

Name :R .NISHANTH
Email Id :sheebaramesh15@gmail.com
Phone no:8190016755

EV BATTERY RECYCLING

University Name : Madras university

Student Name : M.Hemamalini

College Name : Thiruthangal Nadar College

NM ID : Unm143521BSCCHE04

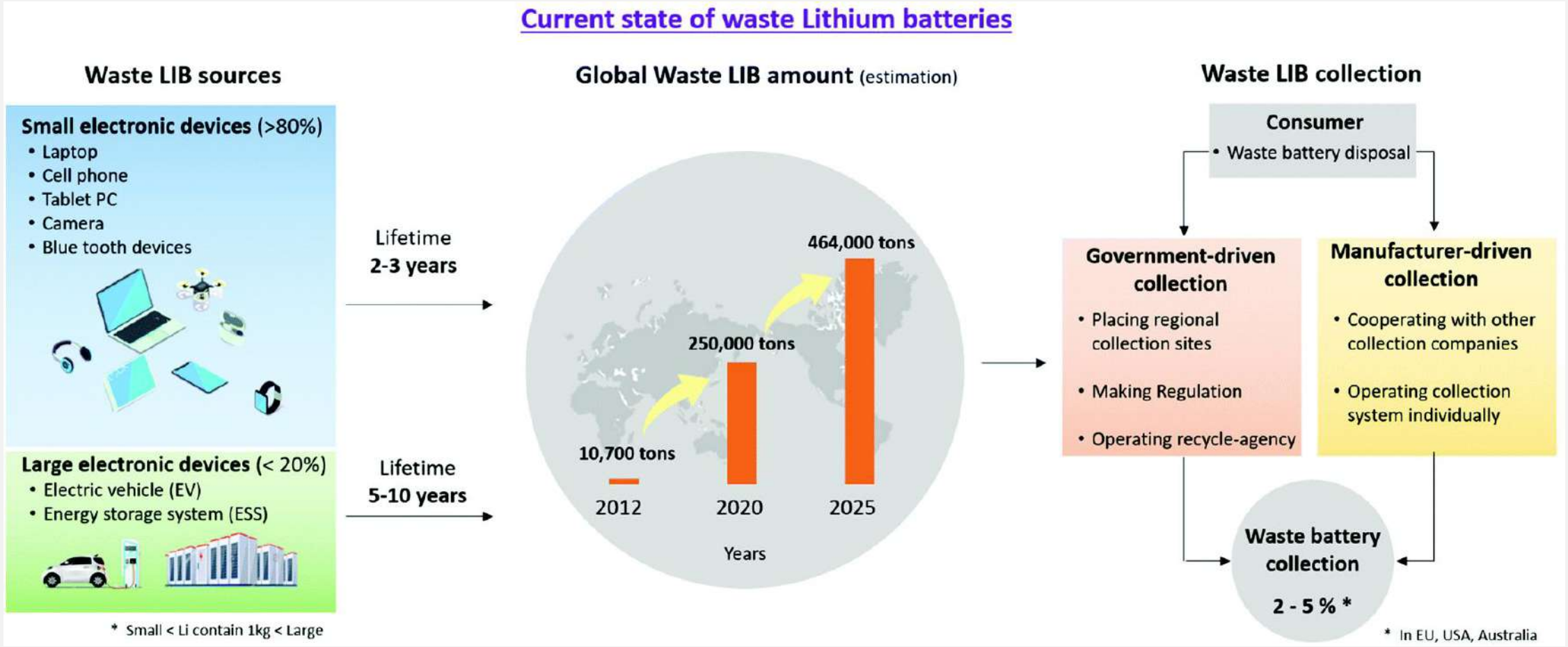
INTRODUCTION

- One of the most revolutionary ideas at the time of the invention was the battery.
- A battery is defined as a device where energy is stored and delivered through electrical means.
- The first efforts to recycle consumer batteries occurred in the early 1990's.
- Recycling processes today recover approximately 25% to 96% of the materials of a lithium- ion battery cell.

EV BATTERY LOGISTICS

- Logistics vehicles are operational tools for logistics and leasing enterprises, and using the vehicles considering the cost of the whole life cycle.
- Safe and reliable delivery.
- High load capacity for efficient delivery.

EV BATTERY STATE

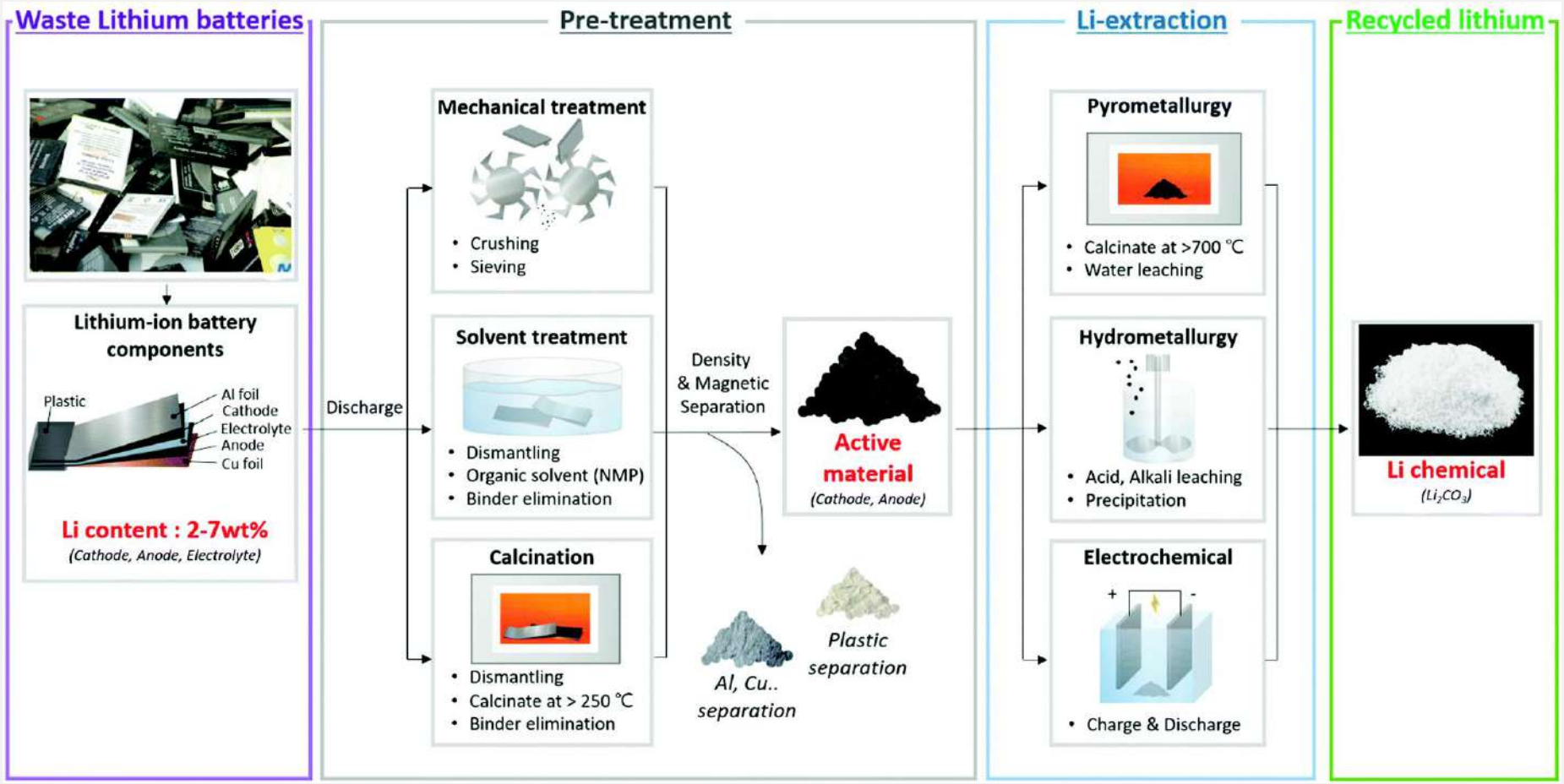


Why should we recycle?

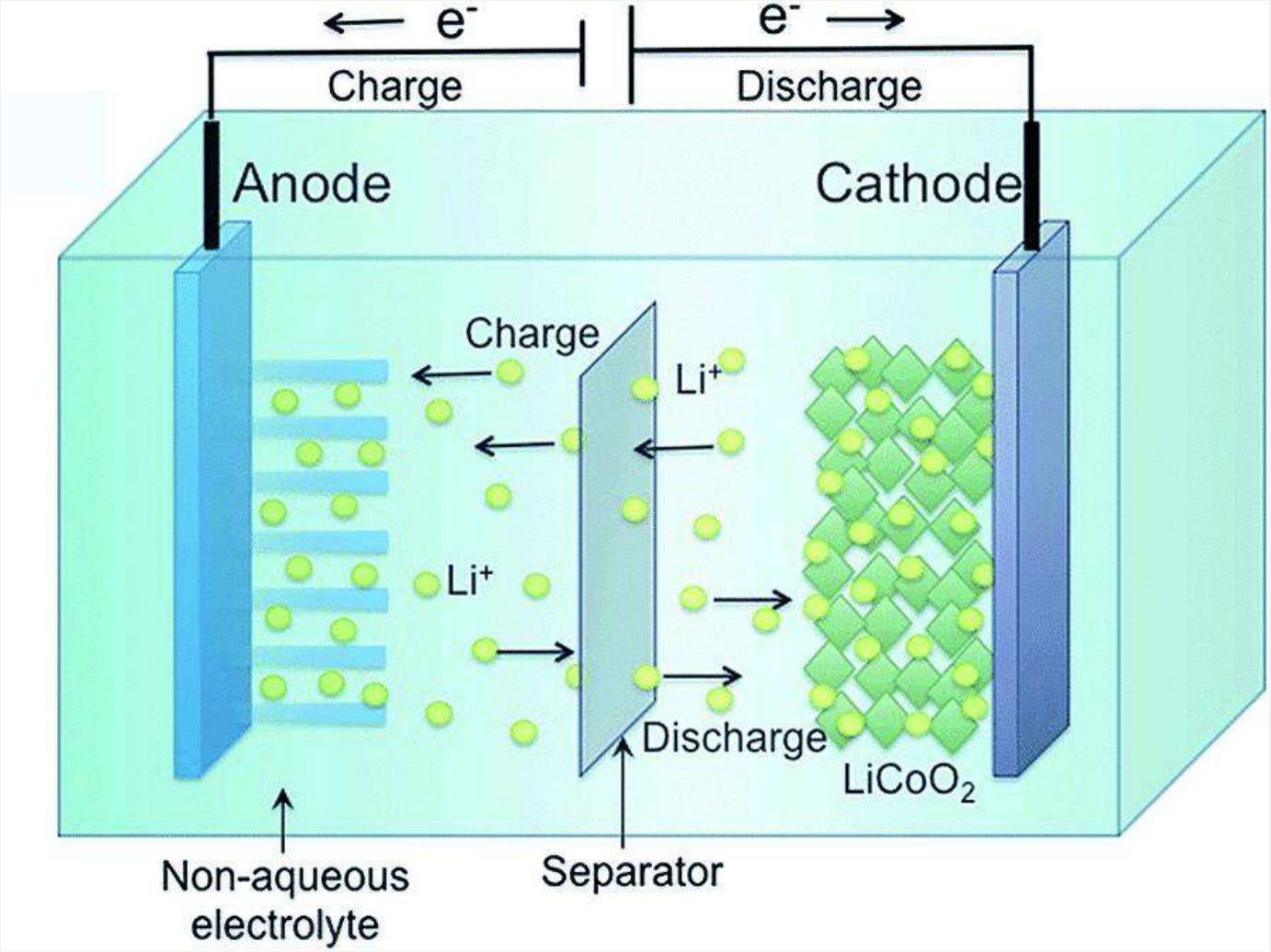
- 350 million are rechargeable.
- Only 99 million wet- cell- lead- acid car batteries are manufactured each year.
- Preserve natural resources.
- Batteries contain heavy metals such as mercury., lead, cadmium, and nickel, which can contaminate the environment when batteries are improperly disposes of.

What technology is used to recycle EV batteries ?

Hydrometallurgical recycling

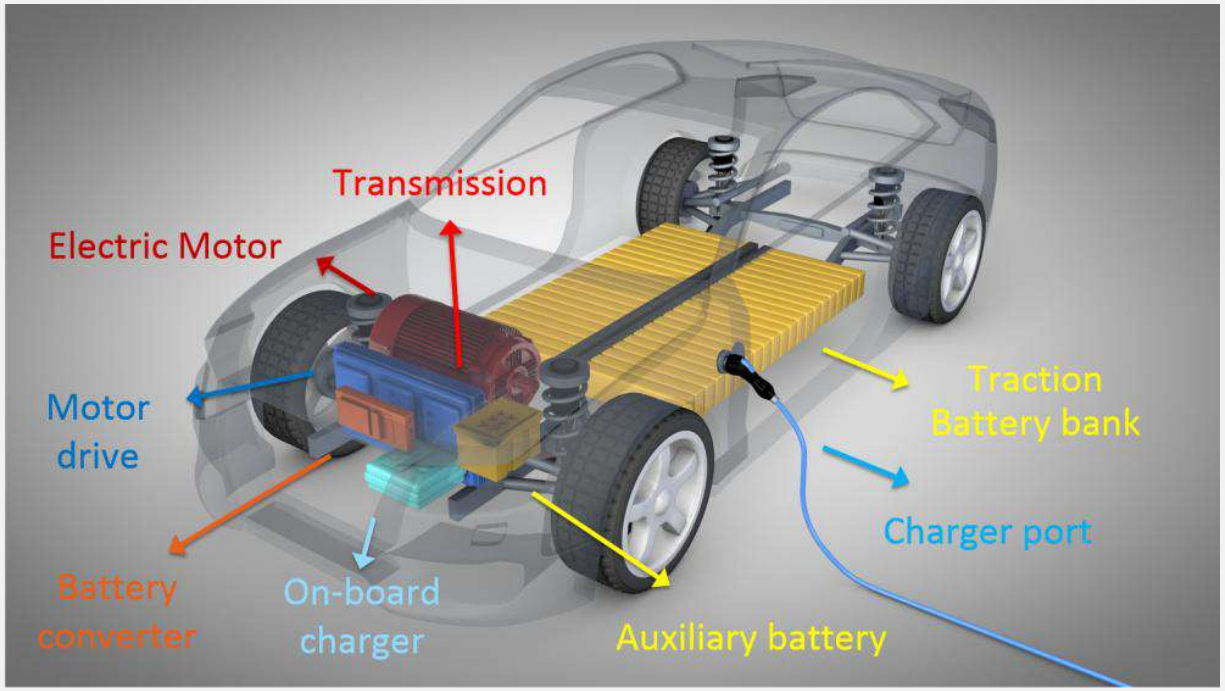


LITHIUM – ION BATTERIES



What is the best battery technology for electric cars ?

Lithium ion batteries is very efficient and offering excellent high – temperature performance, they are currently the best option for holding a stable charge and are recyclable.

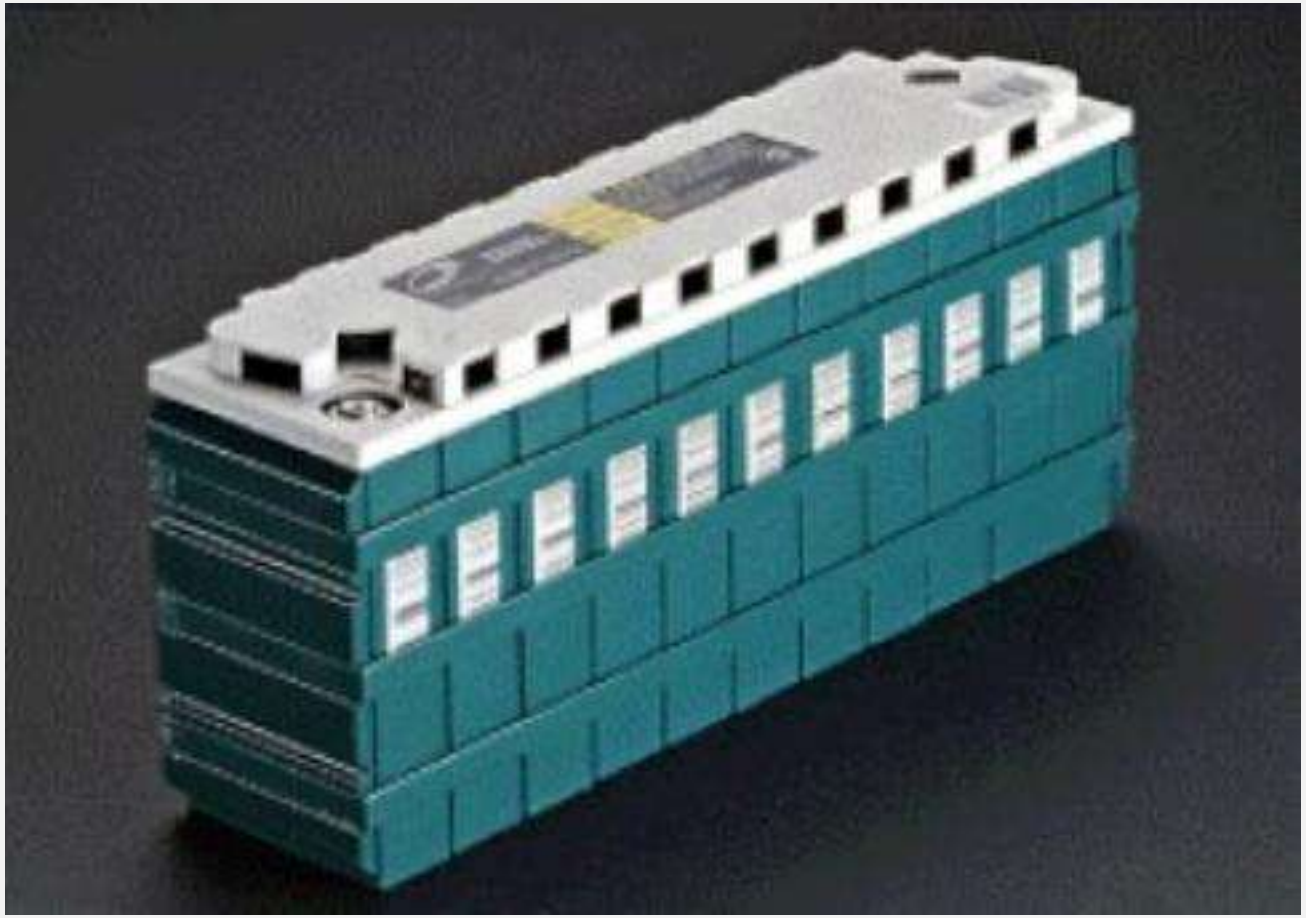


TYPES OF EV BATTERIES

Lithium ion

TYPES OF EV BATTERIES

Nickel – Metal Hydride



TYPES OF EV BATTERIES

Lead - acid

TYPES OF EV BATTERIES

Ultracapacitor

Environmental Benefits

- Zero emissions
- Cleaner fuel
- Energy in production
- Lower running costs
- Lower maintenance costs
- Tax benefits
- Reduction in secondary charges
- Better resale value
- Great performance
- Zero tailpipe emissions

THANK YOU...

Name : M.Hemamalini

Email Id : hemamalini0118@gmail.com

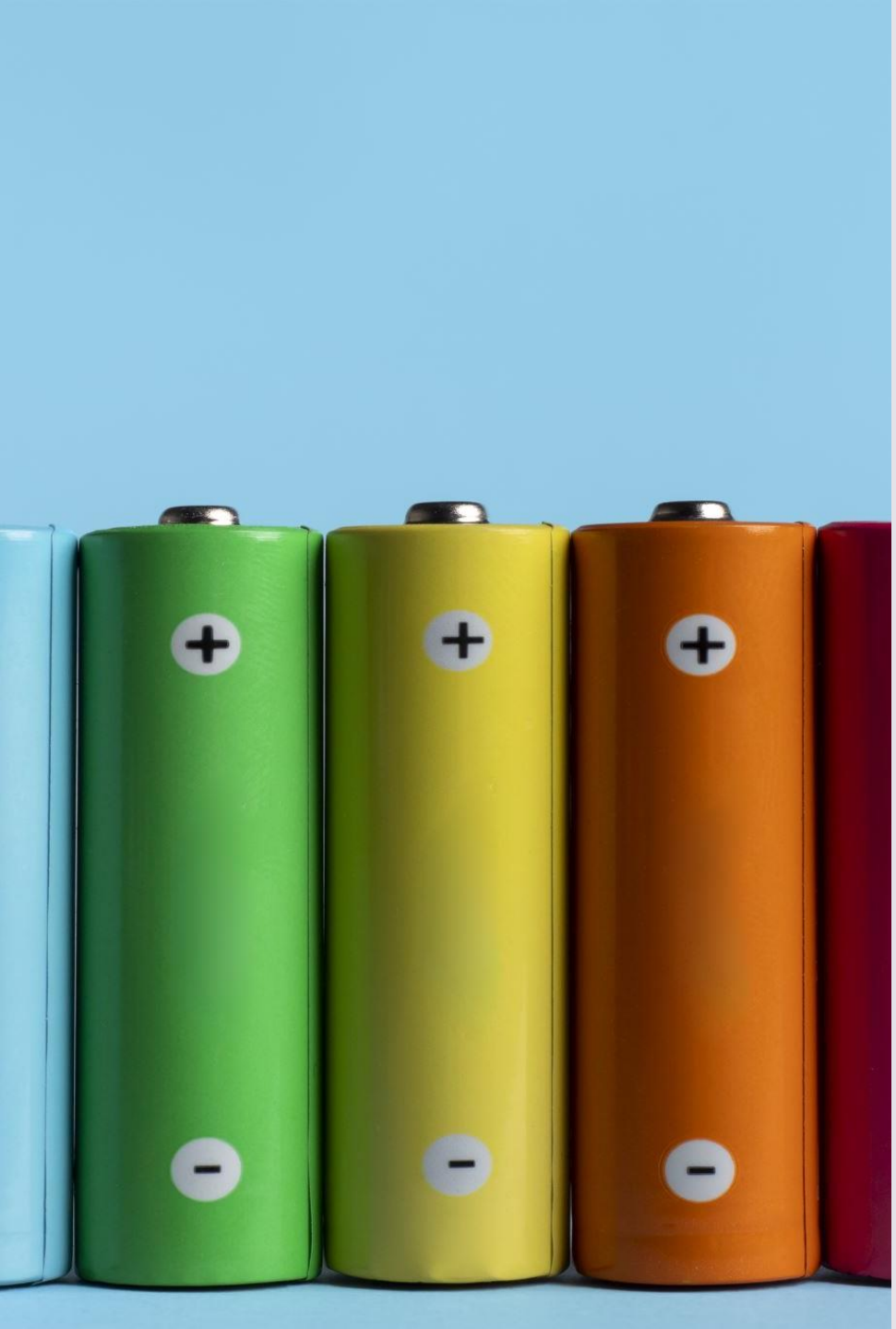
Phone no : 9344384469

EV Battery Management

- *Battery Chemistry Analysis Presentation*
- *University Name: University Of Madras*
- *Student Name: T. Sandhanamari*
- *College Name: Thiruthangal Nadar College*
- *NM ID:UNM143521BSCCHE08*

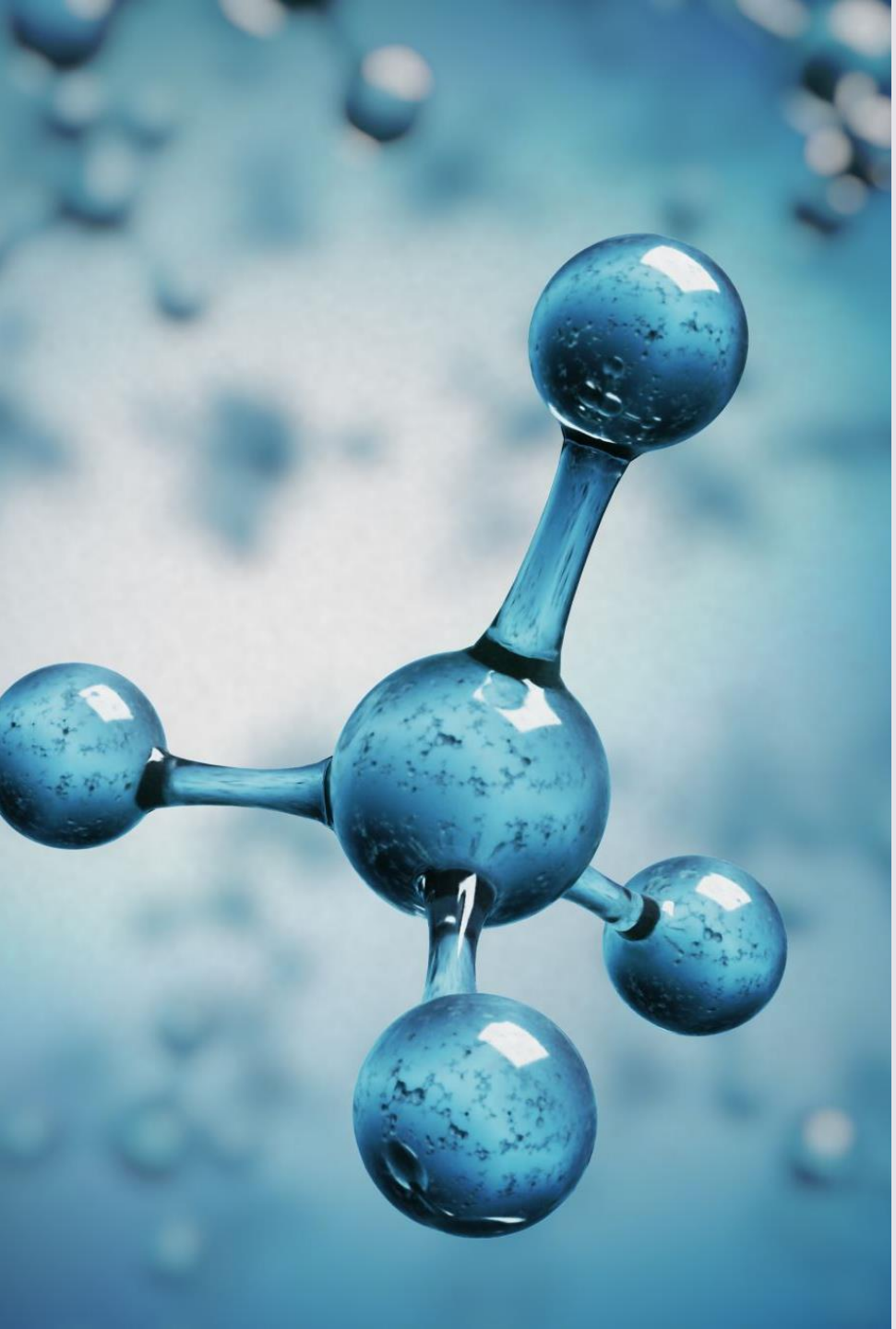
Introduction

- *Introduction to the importance of battery chemistry in various applications, from consumer electronics to renewable energy storage*



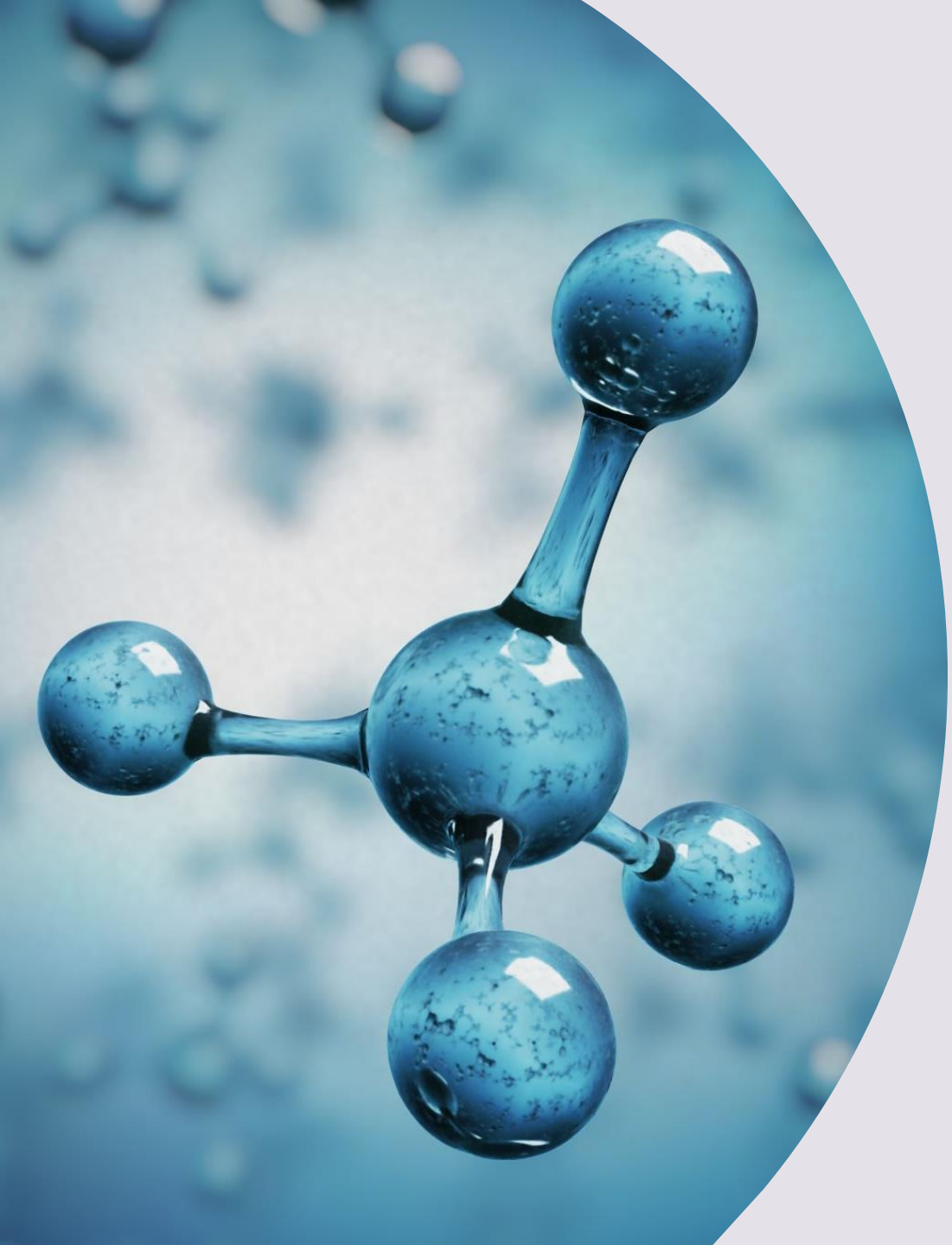
Importance of Battery Chemistry

- *Definition: Battery chemistry refers to the chemical composition and reactions that occur within batteries to produce and store electrical energy*
- *Significance: Highlights the role of battery chemistry in determining performance, energy density, lifespan, and safety of batteries*



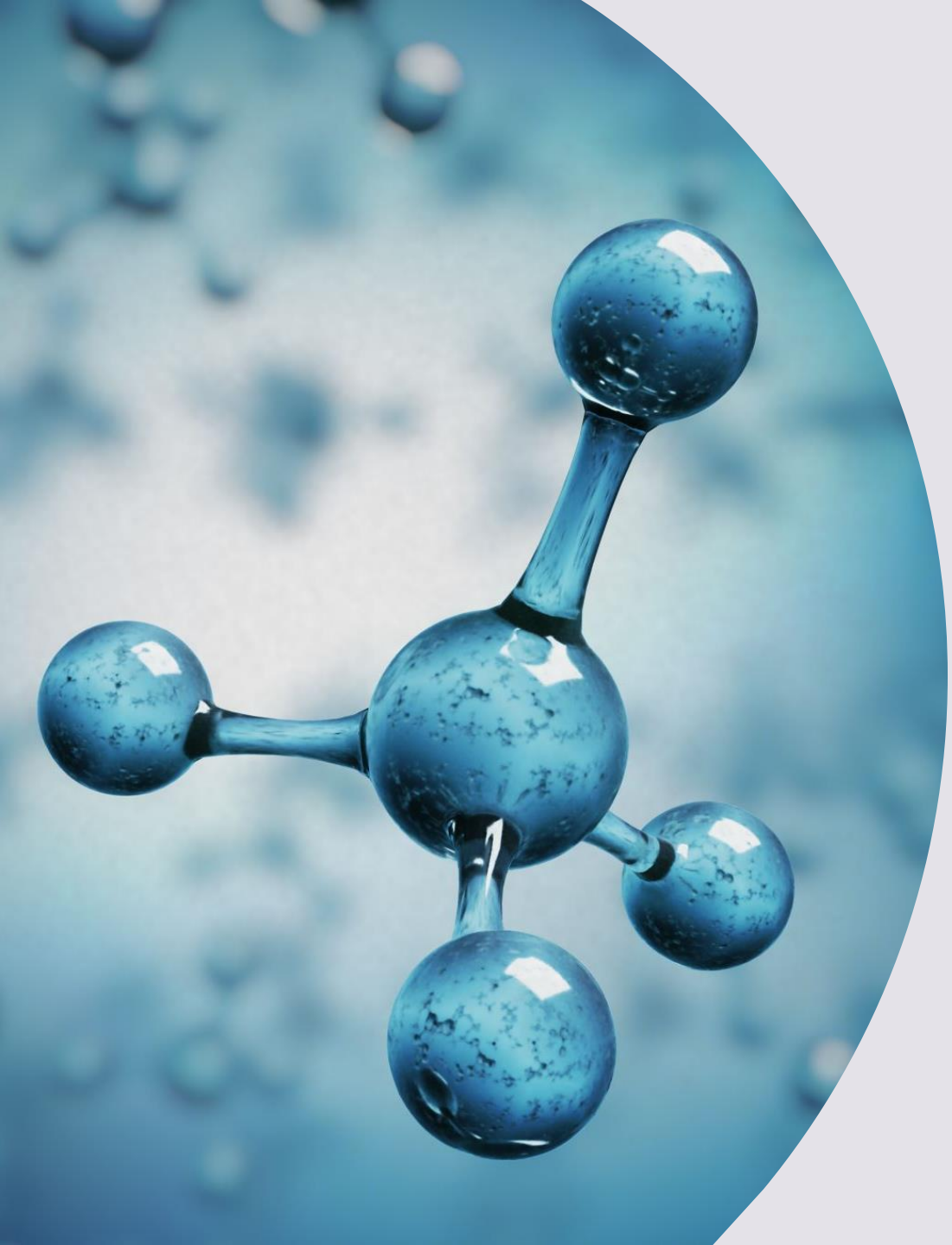
Types of Battery Chemistries

- *Lithium-ion (Li-ion): Most common in consumer electronics and electric vehicles (Evs), known for high energy density and long cycle life*
- *Lead-acid: Traditional and inexpensive, used in automotive and uninterruptible power supply (UPS) applications*
- *Nickel-metal hydride (NiMH): Common in hybrid vehicles and rechargeable consumer electronics*
- *Solid-state: Emerging technology promising higher energy density, safety, and lifespan compared to traditional Li-ion batteries*



Components of Battery Chemistry

- *Anode: Where oxidation (loss of electrons) occurs during discharge*
- *Cathode: Where reduction (gain of electrons) occurs during discharge*
- *Electrolyte: Medium facilitating the movement of ions between the anode and cathode*
- *Separator: Prevents short circuits between the anode and cathode*



Lithium-ion Battery Chemistry

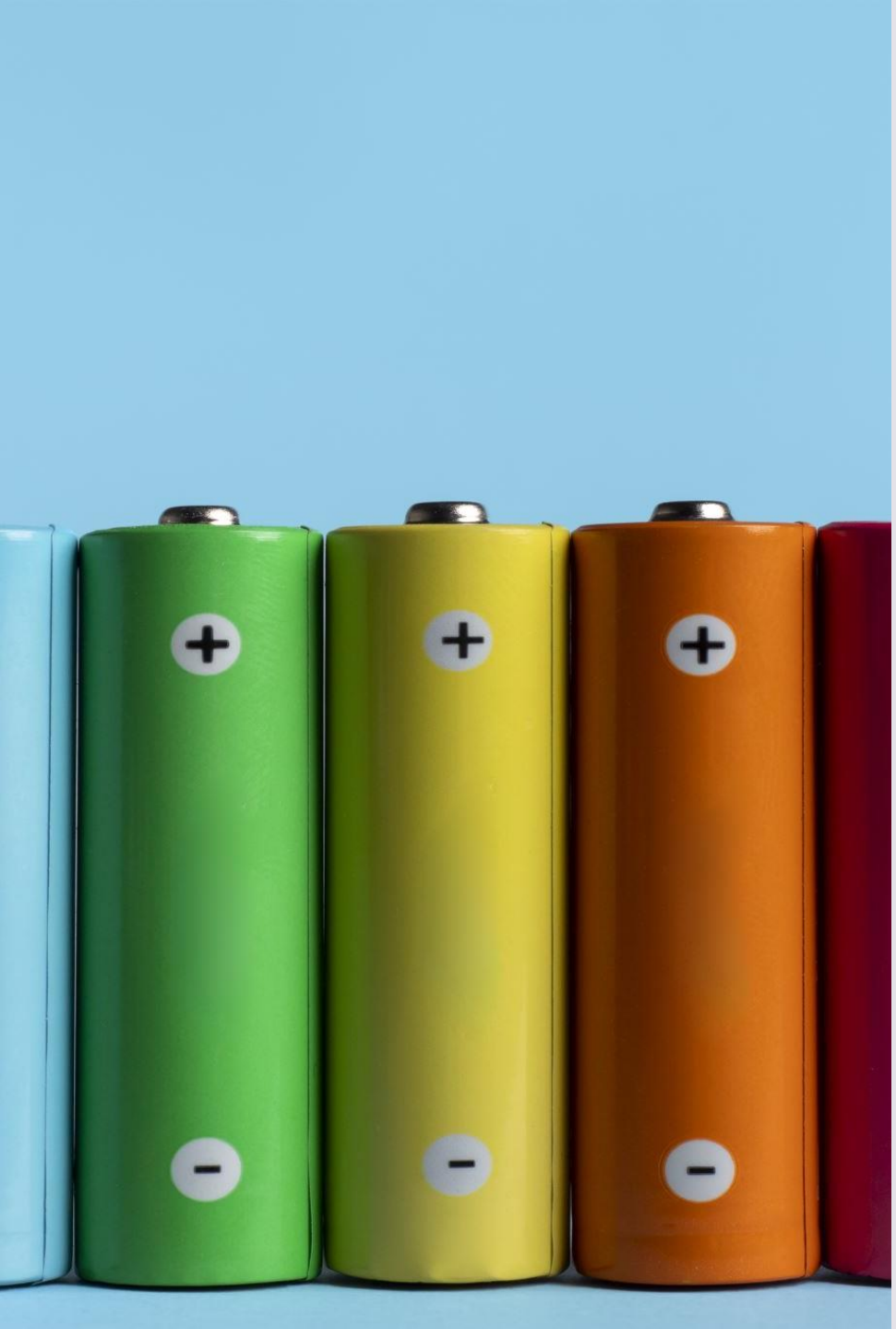
- *Chemistry: Lithium cobalt oxide (LiCoO2) cathode, graphite anode, and electrolyte typically containing lithium salt*
- *Operation: Lithium ions move from the anode to the cathode during discharge and reverse during charging*
- *Advantages: High energy density, low self-discharge, and long cycle life*

Challenges and Limitations

Safety Concerns: Risk of thermal runaway and fire, especially in high-energy applications

Cost: Expensive raw materials, limited lithium supply, and complex manufacturing processes

Environmental Impact: Issues related to resource extraction, recycling, and disposal



Future Trends and Innovations

- *Solid-State Batteries: Potential to overcome safety and energy density limitations*
- *Beyond Lithium: Exploration of alternative chemistries such as sodium-ion, potassium-ion, and magnesium-ion batteriesRecycling and Sustainability: Advancements in battery recycling technologies to minimize environmental impact and promote circular economy practices*

Applications and Implications

- *Consumer Electronics: Powering smartphones, laptops, tablets, and wearable devices*
- *Electric Vehicles: Driving the transition to sustainable transportation*
- *Renewable Energy Storage: Enabling grid stabilization and integration of renewable energy sources*

Conclusion

- *Recap: Battery chemistry plays a crucial role in determining battery performance, lifespan, and safety*
- *Future Outlook: Continued research and innovation are essential for addressing challenges and unlocking the full potential of battery technologies*
- *Closing Remark: Understanding battery chemistry is key to shaping a sustainable and electrified future*

TNASDC for Logistics — amil Nadu Apex Skill Development Centre for Logistics

Name of the student:	SYED SALMAN AHMED.R	University:	UNIVERSITY OF MADRAS
College Name:	THIRUTHANGAL NADAR COLLEGE	Mobile number	9444667890
College Code:	1435	E mail Id:	syedsalmanahmed2004@gmail.com

Instructions:

1. Fill only the Green Coloured cells by Double Clicking on the Cell the following 6 forms.

Goods Delivery Challan

Company Name:	ABC Company
Address:	66, Akshay Industrial, Chennai
Phone No.:	6926321667
Email:	ABCCompany7@gmail.com
GSTIN:	24AAACC1206D1ZG

Delivery Challan For:	XY Company	Shipping To:	XYZ Company
Party Name:	Sankar	Shipping Name	Star Transports
Address:	70, Industrial Tools	Address:	20, Cloath Market, Coimbatore
Phone No.:	1234567890	Phone No.:	8910831420
Email:	Sankar6@gmail.com	Email:	XYZ6@gmail.com
GSTIN:	24AAADD2396724	GSTIN:	24CCCDD5926D1ZG
Challan No.:	32	Delivery time:	23.10.5
Date:	20/09/23		

Sl No.	Item Name	HSN/SAC Code	Quantity	Unit
1	Cloth material	5208	1000 pcs	487.29
2	Drill Machine	84304130	10.00 pcs	520.00
	Total		20	1007.29

Terms and conditions:

Authorised Signature: Syed

Received By
Name:
Comment:
Date:
Signature: XYZ Company 20/9/23

Delivered By
Name:
Comment:
Date:
Signature: ABC Company 21/10/23 Syed

Commercial Invoice

Exporter :	ABC Company	Invoice No. & Date	PE/256/01 Dec/03/2023	Exporter Ref:	Suresh
				IEC No.:	
Consignee :		Buyer's order no. & Date	84304120, 82041120 Dec/03/2022		

	Z company Srilatha	Other Reference(s)	Y 2 company
		Notify Applicant	Monish
Country of Origin	India, Chennai	Country of Destination	Chennai
Vessel/Flight no.	922672		
Final Destination	Gujarat	Terms of Delivery & Payment:	1007.29 in a single Payment

Marks & nos	No. & kind of Packages	Description of Goods	H.S Code	Quantity /Nos	Rate/ in Rupees	Amount in rupees
	1	Cloth material	5208	10.00pcs	487.29, 520.00	
				Less Discount		
				Total	1007.29	
	2	Grill Machine	84841430	Freight		1007.29
						1007.29

Amount Chargeable (in words)	Thousand Hundred and seven
Total Net Weight	80 kg, 18,444.09
Total Gross Weight	17, 044
Total Quantity	32, 099
GST Registration No.	GACC DD2933 D124

We hereby Certify that Merchandise covered under the invoice are of India origin

We undertake to abide by provisions of Foreign Exchange Management Act, 1999

As amended by time to time, including realization/repatriation of foreign exchange to or from India

We intend to claim rewards under merchandise exports from India Scheme (MIES)

End use details: GNX200 – For commercial assembly or processing (for Manufacture / actual case)

LUT BOND NO. ARN NUMBER

DECLARATION:

WE DECLARE THAT THIS INVOICE SHOWS THE ACTUAL PRICE OF THE GOODS DESCRIBED &

THAT ALL PARTICULARS ARE TRUE AND CORRECT

S

AUTHORISED SIGNATORY

Certificate of Origin

GOODS CONSIGNED FROM (Exporter's Business Name, Address, Country)	Reference No. 2923295
GOODS CONSIGNED TO (Consignee's Name Address, Country) XYZ Company	Certificate of origin (Non Preferential) (Combined declaration and certificate) issued in India

Mode of Transport and Route	Cargo, Flight

Item Number	Marks and numbers of Packages	Number and kind of packages description of goods	Origin criteria	Gross weight or other quantity	Number and date of Invoices
2	2	2	India	30.085	4

Certification

It is hereby certified, on the basis of control carried out, that the declaration by the exporter is correct

Declaration by the exporter

The undersigned hereby declares that the above details and statements are correct, that all the goods were produced in India and that they comply with the origin requirements for exports to

Place and date, signature and stamp of Authorised signatory	(Importing Country)
Syed Salman Ahmed	Place & date, signature & stamp of Authorised signatory

Export Declaration Form

EXPORTER'S NAME & ADDRESS:	SHIPPING BILL NO:
ABC Company	2635920
	DATE: NOV-19-23
TEL NO: 1234567890	
FAX NO:	
	AWB NO :
CONSIGNEE'S NAME & ADDRESS:	MARKS & NOS. 2
12 Company, Chennai	
TEL NO:- 9876543210	
H/P :-	

NO. OF PACKAGES	DESCRIPTION	QUANTITY	RATE	VALUE
1	1	10.00	437.20	-
2	2	10.00	520.00	

	Value Declared for Custom Purpose:									
	Country of Origin :	India	Total:	1007.24						

International Trade Simulation Challan

Company Name:	ABC Company		Company logo
Address:	66, Akshay Industrial		
Phone No.:	1234567890		
Email:	ABC Company 7 @gmail.com		
GSTIN:	24AAACC1206D1ZA		

Delivery Challan For:	XY Company	Shipping To:	Y2 Company
Importer Name:	Sankar	Exporter Name	Star Transport
Address:	70, Industrial tools Chennai	Address:	20, Cloath manchas, Gujarat
Phone No.:	7200285662	Phone No.:	8932227201
Email:	Sankar6@gmail.com	Email:	XYZ6@gmail.com
Pan No. :	-	Pan No. :	-
Importer ID :	294CDE	Exporter ID :	2923D1
Challan No.:	32	Delivery time:	23/10/23
Date:	20/09/23		

Sl No.	Product Name	Code	Quantity	Unit
1	Cloth material	5208	10.00	437.24
2	Drill machine	84304130	10.00	520.00

3							
	Total				20	1007.19	
Terms and conditions:			Authorised Signature				
Recieved By Name: Comment: Date: Signature:	XYZ Company 20/9/23						
Delivered By Name: Comment: Date: Signature:	ABC Company 21/10/23						