



UNDERWRITERS LABORATORIES®

## Memorandum of Understanding (MoU)

# Battery Fires: Study of Response Strategy of Indian Fire Services



Underwriters Laboratories Inc.



National Fire Service College



**Memorandum of Understanding  
between  
Underwriters Laboratories Inc.  
and  
National Fire Service College**

The purpose of this Memorandum of Understanding ("MOU") is to facilitate cooperation and to strengthen the relationship between Underwriters Laboratories Inc. ("UL"), with its principal place of business at 333 Pfingsten Road, Northbrook, Illinois 60062, U.S.A. and National Fire Service College (NFSC), Nagpur, with its principal place of business at Takli Feeder Road, Raj Nagar, Nagpur – 440013 (collectively, "the parties").

Whereas, UL is a non-profit organization with globally distributed offices and the Electrochemical Safety team with its main presence in the League City, Texas area with a branch in Bangalore, India. The National Fire Service College (NFSC) is one of the allied organizations of Disaster Management Division functioning under the Director General (Fire Services, Civil Defence & Home Guards), Ministry of Home Affairs, Government of India with the aim of providing training and academic studies in the field of fire engineering and technology to the fire professionals of the country in advanced techniques of fire prevention, fire protection, firefighting & rescue and creating uniformity in the fire service organizations and their management across the country.

Whereas, the parties believe it would be beneficial to collaborate in furthering their respective efforts to advance fire safety in the area of fires caused by battery powered vehicles and grid storage installations in India and meet the public safety missions of both organizations.

UL and NFSC establish this agreement with the following goals:

- Promote communication between the two organizations;
- Avoid duplication of work efforts where possible;
- Provide support in the fire research study undertaken by UL;
- Increase knowledge of each organization's efforts in the area of fire safety with respect to batteries;
- Facilitate the participation of stakeholders in each other's battery fire safety development efforts;
- Undertake opportunities to collaborate in the development of workshops, seminars, training and capacity building activities and efforts;
- Explore collaborative opportunities with other organizations responsible for regulations concerning battery fires in e-mobility and grid energy storage systems where both organizations see the value in doing so.



UL and NFSC agree to work together in the following areas as part of the ongoing study led by UL titled – 'Battery Fires: Study of Response Strategy of Indian Fire Services':

1. **Connect with Fire Chiefs (Immediate):** The study will be comprehensive with inputs and insights of Fire Chiefs and Senior Fire Service Officials from the 10 states identified for this study. NFSC will connect UL to the state Fire Chiefs and/or Senior fire officials from the 10 states listed above, to interview them using the questionnaire developed for fire services.
2. **Virtual seminar (September 2021):** As a kick-off to this partnership, organize and conduct a virtual seminar in the summer months of 2021 on battery hazards and fire and gas characterization with regards to EVs and stationary grid applications. The seminar would bring together key stakeholders from the Fire Safety space, including fire services, academia, associations, standards and research organizations, amongst others. A half day event will be planned. A joint invitation will be sent to invite key stakeholders to the seminar. The agenda for the seminar will be mutually finalized.
3. **Training workshop (November 2021):** A training workshop on Battery Safety/Fires to share knowledge on the different safety aspects of lithium-ion batteries, fire characterization and fire suppression and existing standards. UL's battery safety expert will lead the training on these topics and UL will provide the learning materials used in the training with the participants. NFSC will provide support by inviting their faculty, fire chiefs and other senior officials of Fire Services from across India to participate in the training.  
**Objective:** To inculcate knowledge and create awareness among key stakeholders in the fire safety area about lithium-ion battery fires and their various facets so as to upskill them and build their capacity and knowledge about battery fires.
4. **Course curriculum on battery fires/safety:** Start discussions on developing course curriculum/modules on battery safety and battery fires to include them in the B. E. (Fire Engineering) and other courses for current and future NFSC students. This will not just support in mainstreaming battery safety science in the NFSC curriculum, but also help in capacity-building and knowledge development of the present and future fire engineers on the topic of battery safety and battery fires. The parties will enter into an appropriate written agreement to set forth the ownership, rights and terms of use for any course materials created.
5. **Collaborative battery fire research:** NFSC and UL will initiate deliberations regarding collaborative studies on battery fires and fire suppression. UL sees great synergy in NFSC's expertise in fire engineering and UL's expertise in carrying out battery safety science studies. UL and NFSC can conduct battery fire research using NFSC facility and setting it up a center of excellence for Battery Fire Research that



will be later named by the parties. Students of NFSC can also benefit with hands-on experience in conducting such studies.

**6. Confidential Information.** Each Party acknowledges that in connection with the MOU it may have access to or otherwise receive or observe confidential or proprietary information or materials of the other Party ("Confidential Information"). Confidential Information includes: (a) business and financial information; (b) plans, designs, sketches, and prototypes for products and services; (c) engineering and technical information such as software, test processes and methodologies, data, and test equipment and fixtures; Confidential Information, however, does not include information or materials that are: (i) already known to the receiving Party at the time of disclosure; (ii) publicly available or that become publicly available other than through the acts or omissions of the receiving Party; or (iii) subsequently acquired by the receiving Party from other sources not in violation of any confidentiality obligations. Each Party agrees to treat all Confidential Information of the disclosing Party with the same degree of care it employs to protect its own Confidential Information and in no event less than a reasonable standard of care. UL may disclose the Confidential Information: (i) to other UL Companies, agents, subcontractors or other third parties in connection with performing its obligations under this MOU; (ii) when deemed it to be in the interest of public safety; (iii) when required to be produced pursuant to an order or command of any judicial, regulatory, or accreditation authority; or (iv) when required by any statutory duty. Each Party agrees at its expense to return or destroy, as instructed by the disclosing Party, all Confidential Information upon request from the disclosing Party, except that one copy may be retained solely for recordkeeping or accreditation purposes. Each disclosing Party retains exclusive ownership of all right, title and interest in its Confidential Information.

**7. Disputes.** Any dispute or disagreement, relating to this MOU, will be settled amicably by mutual discussion. However if the dispute could not be settled by discussion then either party submit the Dispute to Arbitration to be conducted in accordance with the provisions of Arbitration and Conciliation Act, 1996, as amended from time to time. The seat of Arbitration shall be Bangalore/Nagpur. The Arbitration proceedings shall be conducted by the sole Arbitrator to be appointed mutually by the Parties. The arbitration proceedings shall be conducted and the award shall be rendered in the English Language. The award rendered by the arbitrator(s) shall be final, conclusive and binding on the Parties to this Agreement. Each Party shall bear the cost of arbitration, including fees and expenses of the arbitrator, where there is only one shall be shared equally by the Parties. All arbitrations will be conducted in English.



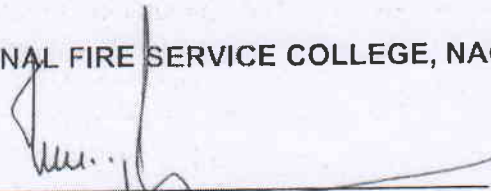
The parties may issue press releases and other publicity regarding this MOU, provided that such materials are provided to, and approved in writing by the other party prior to release.

This MOU is valid for a period of five years and can be renewed based on continued interest by both parties. UL and NFSC agree to formally review this MOU on a yearly basis to determine if it continues to meet its stated goals.

Notices regarding this MOU should be directed to: Dr. Judy Jeevarajan, Research Director, Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, Illinois 60062, U.S.A., (1) 346-315-6870, [judy.jeevarajan@ul.org](mailto:judy.jeevarajan@ul.org); and R. S. Chaudhari, Deputy Director, National Fire Service College, Takli Feeder Road, Rajnagar, Nagpur – 440013, 9422804457, [chaurajesh@gmail.com](mailto:chaurajesh@gmail.com), [nfscnagpur-mha@nic.in](mailto:nfscnagpur-mha@nic.in).

This MOU shall remain in effect until such time as one or the other party requests its termination, giving thirty (30) days' written notice in order to hold discussions about termination and as a courtesy.

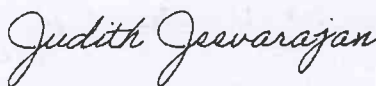
NATIONAL FIRE SERVICE COLLEGE, NAGPUR

  
Mr. Ramesh Kumar, Director

30th July 2021

Date

UNDERWRITERS LABORATORIES INC.

  
Dr. Judy Jeevarajan, Research Director

July 30, 2021

Date