GUIDELINES FOR HANDLING MOLTEN ALUMINUM

FOURTH EDITION
MAY 2016
The guidelines and recommendations in this book are based on information believed to be reliable and are offered in good faith but without guarantee. The precise causes of molten metal explosions, and the conditions under which problems arise, have been long studied but are still not fully understood. The operational conditions which exist in individual plants and facilities vary widely, and thus no definitive standards exist for handling molten aluminum. Accordingly, the Aluminum Association and its member companies assume no responsibility or liability for the completeness of the data or the general applicability of the guidelines and recommendations herein, which are based on state of the art knowledge but may not be appropriate in all situations. The photographs in this publication are illustrative only and are not intended to represent standard safety practices utilized in the industry. Users of these Guidelines should adapt the recommendations herein, as appropriate, to the precise conditions of the individual facility under consideration and should always exercise independent discretion in establishing plant or facility operating procedures. No warranty, express or implied, is made of this information by the Aluminum Association or by any of its member companies.
The original Guidelines were first issued by the Aluminum Association in 1980, quickly followed by a first revision in 1982. In 1990, a second edition was published which presented information and practices available up to that time. In 2002, a third edition was released which was reflective of the ongoing evolution of molten metal safety management programs.

It is clear from the revision history noted above that practices and equipment for melting and casting aluminum are continually being modified and improved for a variety of reasons. In addition, information from industry reporting programs and research efforts spearheaded by the Aluminum Association and its member companies is continually being generated. Therefore, in order to capture and disseminate updated information in these areas, these guidelines undergo periodic review and revision toward the goal of making the aluminum industry workplace safer.

This fourth edition of the Guidelines was prepared with technical input and review by industry representatives with considerable expertise in all aspects of handling molten aluminum. Basic information has been retained, but considerable change has been made to the organization and presentation of the subject matter. New sections have been added and the existing sections have been significantly updated and expanded to incorporate the new information available since publication of the third edition. In particular, new information has been added on 1) the management of the hazards presented by combustible aluminum dust, 2) the unique hazards of managing aluminum-lithium alloys, and 3) mobile equipment safety in the casthouse.
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