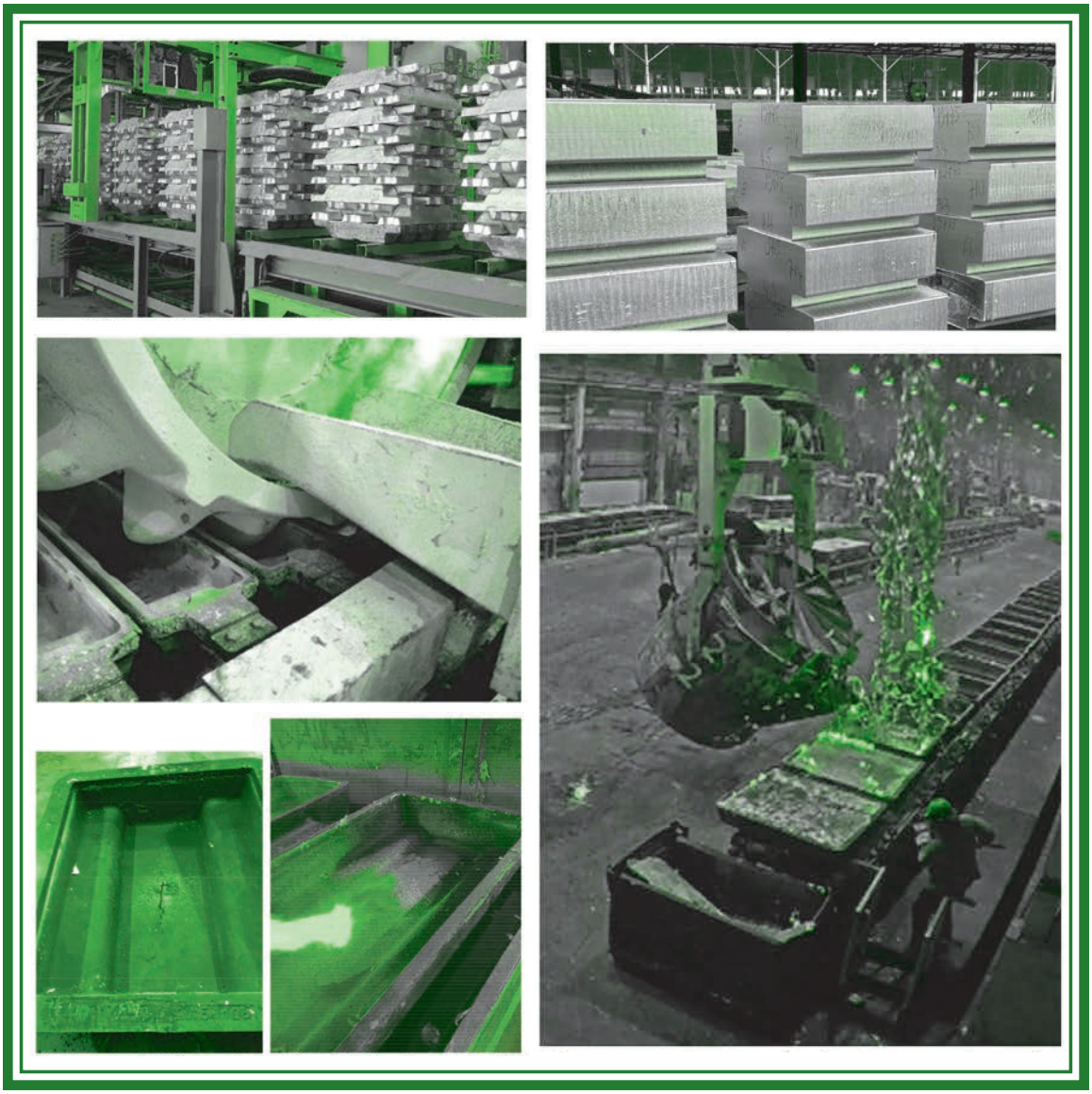
Guidelines for Aluminum Sow Casting and Charging

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The Aluminum Association
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GUIDELINES FOR ALUMINUM SOW CASTING AND CHARGING

Third Edition

These *Guidelines* have been developed by the Aluminum Association with oversight by the Task Force on Sow Casting and Charging

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.

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GUIDELINES FOR CASTING ALUMINUM INTO OPEN TOP MOLDS AND CHARGING THE RESULTANT CAST PRODUCTS

I. INTRODUCTION

A. Purpose of these Guidelines

Numerous explosions have been caused by wet, cold, or contaminated cast aluminum shapes being charged into molten aluminum in melting furnaces. These Guidelines have been prepared and published with the aim of helping companies that produce and/or melt cast aluminum shapes to prevent injuries, fatalities, and equipment damage associated with the explosions. A second objective is to promote the cooperation and understanding of all personnel that handle, transport, and store this type of material to help prevent incidents from potential hazards. These Guidelines are safety related and are not intended to provide commercial advice nor guidance of any kind.

The Guidelines offer information and recommendations derived from industry experience for individual plants to consider in designing and operating their own safety programs for the casting of aluminum in open top molds and the inspection and melting of the resultant cast products.

All plant personnel are expected to follow specific safety procedures established by their management. These Guidelines are not intended to preempt or replace those safety procedures.

B. Scope and Definitions

Bulk aluminum intended for remelting is often cast into several different forms that are in-scope of this document:

Standard Ingot (or **Small Ingot**, **Foundry Ingot**) – aluminum cast into open top molds in sizes ranging from 20 to 57 pounds (9 to 26 kilograms), which is consistent with recommended guidance from the London Metal Exchange (LME), typically remelted by foundries, and used to cast aluminum products into various shapes. Can be sourced from either primary aluminum, secondary aluminum, or a combination of both. Often stacked and shipped in bundles. See Figure 1 for a representative picture.