Self-shielded arc welding
By Dr. Tad Boniszewski
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Institute, Cambridge, England UK

To be precise this is not a book but a
treatise on self-shielded arc
welding (SSAW). The author is an
authority on welding consumables,
particularly welding fluxes.
Therefore, I am not competent
enough to review this book but
however I would like to appraise
the readers with the contents of
this book briefly, so that any one
who is interested in further details
can go through the book in detail.
The author indicates that the
purpose of this book is to put SSAW
process on the map as a distinct
process in its own right and this
book is for a broad readership as it
deals with various aspects of this
topic.

The book begins with an
introduction of this process and
goes on to deal with Process
Metallurgy in depth, which covers
particularly the effects of killing,
nitrogen pick-up, core ingredients
in the flux and their effects. A large
volume of data is given on these
aspects including fluxing
ingredients in various types of AWS
A 5.20/5.29 SSAW consumables,
which should give lot of useful hints
for the consumable designers.

Continuing the metallurgical
investigations and discussions the
book then deals with the physical
metallurgical aspects and the
resultant properties. The
subsequent chapter discusses the
procedures for achieving high
fracture toughness in welds, which
gives practical data for the welding
procedures. A separate chapter
discusses the development of AWS
specifications for SSAW
consumables particularly A5.20
and 5.29. The book also highlights
the specific advantages of SSAW in
production welding and how to
exploit the advantages of this
process in actual jobs and lists the
jobs in which this process has
proved highly useful.
The book concludes with significant
conclusions like
a) The process relies on protection
of molten metal by fluxing
ingredients of molten metal by
fluxing ingredients
b) The oxygen content of the weld
metal is very low
c) Since the nitrogen picked up is
fixed as nitride particles, the
free nitrogen is much lower as
compared to other arc weld
metals
d) Ideal process for outdoors and
ideal for several typical
applications in industry.
e) The Al content of the weld metal
does modify transformation
characteristics and it is possible
to get tough weld metals using
suitable welding procedures.

This book was first published in
1992 and lot of progress since then
has been made in SSAW process
and its consumables. But I am of
the opinion that this process at
least in India has not made
significant strides and is not being
used very widely like the gas
shielded flux cored wire process in
spite of its merits. It is in this
context, this book becomes a must
read for every one associated with
welding in general and SSAW
process in particular so that the
benefits of this process can be
reaped to the maximum.

By R. RAVI

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