

ation of
tively re-
edure in-
and water
used in
size and
250 mesh
). It is
rne silica
are most
cosis. It
involving
hose in-
hes that
hazard-
vigilance
l. It is,
e vapor
so that
ur.

o essen-
nd water
create a
on when
ise, con-
ould not
actory
l by air

plants
lve the
metal or



solder. Babbitt bearing metal contain-
ing approximately 75 per cent lead
have been encountered. The composi-
tion of solder metal is variable and
dependent upon the purpose for
which it is used, with ordinary soft
solder containing a comparatively
high percentage of lead.

Assuming that the babbitt or solder
contains a significant amount of lead,
the question then arises as to whether
or not employees working with this
material will become ill. The answer
could be given by a qualified indus-
trial hygienist after he had seen the
operation and considered such factors
as the temperature to which the metal
is heated, the method of removing ex-
cess solder, the length of exposure,
and the effectiveness of the control
measures provided.

It is a well known fact that lead
causes illness if absorbed in excessive
amounts, and therefore operations
where lead is used have received con-
siderable study. Out of this experi-
ence certain practices are known to
produce excessive exposure whereas
other practices have been proved not
to be harmful. It is generally con-
ceded that excessive concentrations
do not result from operations where
solder is applied by means of an elec-
tric soldering iron. This is probably
due to the small amounts of solder
used and the comparatively low heat
of the metal.

When the iron is heated in a small
gas-fired furnace, the exposure may
be of greater consequence. Solder
which remains on the iron coming
into contact with the flame or heat is
vulnerable for volatilization. Small
amounts of solder drop from the iron
onto the hot floor of the furnace
where it is readily volatilized or ox-
idized. The oxidized material may be-
come airborne due to disturbances
created by the flame or by removing
or placing the soldering iron in the
furnace.

Frequently industrial hygienists
recommend that ventilation be pro-
vided for heating units of this type,
thereby removing lead fumes and
dust from the environment. This is
particularly true in small rooms or
where many units are in use.

Atmospheric contamination occa-
sioned by the use of either gas or
electrically heated pots containing
solder is dependent on a number of
factors. With higher temperatures
more volatilization will occur and the
greater will be the exposure. With the

higher temperature the metal is more
readily oxidized to produce a dross
consisting of a high percentage of
lead oxide. The dross may provide a
protective coating to reduce the vola-
tilization of the lead; however, dis-
turbance of this coating will create
an exposure.

As a safeguard against excessive
contamination, pots containing solder
or babbitt are usually ventilated.
Wherever possible, it is advisable to
enclose the pot as completely as pos-
sible and provide sufficient air vol-
ume to overcome the thermal effects

of the molten metal. Attempts have
been made to use natural draft ven-
tilation systems to control these fumes
and in those instances where the ducts
were not of sufficient diameter the
system was inadequate. A preferable
method is the use of mechanical sys-
tems.

The removal of excess solder with
power-driven tools, such as grinding
wheels, discs, or wire wheels, creates
airborne dust which may contamin-
ate large areas if the operation is ex-
tensive. Diligent use of abrasive cloth
will also result in excessive concen-

WHEN DANGER TIPS THE SCALE..

WORKERS ARE SAFER IN STA SAFE PROTECTIVE GARMENTS



Dermatitis, burns and injuries threaten
workers not properly protected from
the materials they use. StaSafe Pro-
tective Garments are designed to give
the worker maximum protection.

Oils and Grease
Acids and Caustics
Tars and Creosote
Paints and Lacquers
Naphtha and Solvents
Flame.

Each of these represents a potential
lost time accident. Protect your
workers against these hazards by
standardizing on StaSafe Protective
Garments.

Stock models solve many problems; Standard's
free design service will develop a new model
or modify an existing one to solve your special
safety problem.

Write for Bulletin No. 106

StaSafe Products
are manufactured by

STANDARD SAFETY EQUIPMENT COMPANY

232 West Ontario Street, Chicago 10, Illinois

NEWARK

CLEVELAND

LOS ANGELES

