# Advice & Counsel



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# **Evaluating a Plating Line**

**Outline for Evaluation Of a Plating Line** 

Dear Advice & Counsel,

Since you have had the opportunity to visit numerous metal finishing facilities over the years, could you provide me with an outline of what features in a well designed, well working plating line I should be looking for?

> Signed, **Possible Buyer**

Dear Possible,

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In response to your question, I have quickly jotted down some of the things I look for. Perhaps our readers might wish to add to this outline.

Readers may submit additional concerns for a purchaser of a plating line to faltmayer@sclweb.com and they will be included in a subsequent article. P&SF

### 1. Layout

- (a) Work flow is efficient
- (b) Hoist steps minimized
- (c) Racking/Un-racking stations are efficient for work flow on plating line
- (d) Rack/Part stripping is efficiently located
- (e) Shipping dept. is efficiently located
- (f) Part inspection is efficiently located
- (g) Accessory tanks are appropriately located
- (h) Filters are appropriately located and in containment tanks/travs
- (i) Lighting is sufficient over process tanks and load/unload zones

## 2. Productivity

- (a) Number of rack work bars or barrel produced is optimum
- (b) Reject rate for rack work is less than 2% (c) Reject rate for barrel work is
- less than 10%

#### 3. Materials of Construction are Appropriate

- (a) Cleaner
- (b) Electrocleaner (c) Acid
- (d) Plating tanks
- (e) Rinse tanks

#### 4. Processes

- (a) Rinses
  - i. Appropriate flow rate
  - ii. Temperature
  - iii. Agitation
  - iv. Water quality
  - v. Absence of Silt/soils in tank
  - vi. Floating oil/debris
  - rinses
  - viii. Appropriate type of rinses
    - 1. counterflow
    - 2. single rinse

- (b) Cleaner i. Appropriate type
- ii. Concentration
- iii. Temperature
- iv. Time
- v. Agitation
- vi. Skimming
- vii. Replacement Frequency

(c) Electrocleaner

- i. Appropriate type
- ii. Concentration
- iii. Temperature
- iv. Time
- v. Agitation vi. Skimming
- vii. Replacement Frequency
- viii. Current Density
- ix. Correct Polarity is Employed
- (d) Acid
- i. Appropriate type
- ii. Concentration
- iii. Temperature
- iv. Time
- v. Agitation
- vi. Replacement Frequency
- (e) Plating Solutions
- i. Appropriate type
- ii. Productivity
- 1. Losses due to chemical problems/contamination 2. Losses due to maintenance
- issues iii. Concentration
- iv. Analytical control
- v. Hull Cell control
- vi. Chemical Additions
- 1. Frequency
- 2. Amounts
- 3. Method of additions
- 4. Control windows
- vii. SPC Employed, followed

2. Soil holding capacity

3. frequency of service

4. Physical condition of equip-

viii. Temperature

xiv. Filtration

1. Turnover

- ix. Time
- x. Agitation
- xi. Skimming

ment

- xii. Current Density
- xiii. Purification frequency
- vii. Appropriate number of
- 3. stagnant rinse

- 5. Rectification
- (a) Type, age of rectification equipment
- (b) Cooling employed
- (c) Type of connections between rectifier and tanks
- (d) Voltage drops
- (e) Service frequency

6. Racking

(b) Condition of racks

7. Hoist System

cable

barrels

hoist

tion

**Processes** 

1-2°F

(d) Condition of rack tips

(a) No excessive corrosion

- (f) Ripple
- (g) Individual cell rectification in multiple cell tank

(a) Ouality of racking employed

(c) Stripping capability, frequency

(b) Adjustable speed of entry/

(c) Ability to rotate barrels, if appli-

(d) Accurate in placement of racks/

(e) Easy to change movement of

(f) Carriage system in good condi-

8. Heating & Cooling of

(b) Coils in good condition

(d) Boilers in good condition

on plastic tanks

9. Recycle/Recovery

(a) Type of recycle/recovery

(d) Impact on process, if any, is

accounted for by additional

employed

treatment

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(b) Recovery efficiency

(c) Cost/benefit analysis

(a) Temperature controlled within

(c) Stream traps in working order

(e) Electric heaters with over-tem-

perature protection employed

removal to the process

(e) Size/location of rack marks