TIP 0404-26

ISSUED – 1982
REVISED – 1987
REVISED – 1992
WITHDRAWN – 2001
REVISED AND REINSTATED – 2001

Paper machine clothing performance analysis

Scope

Paper machine clothing traditionally has been evaluated by days life and cost per ton indices. Achievement of maximum clothing life and minimum cost per ton often results in significant reductions in paper machine operating performance. Sacrifices in machine performance to reduce clothing costs can reduce total mill profitability significantly. Alternate clothing evaluation techniques based on impact on paper machine performance have been developed. These techniques relate key operating parameters to the clothing run. Two techniques which have proven useful over a broad spectrum of machines are described. The techniques are most beneficial when clothing performance is monitored over several months or years.

Safety precautions

. No specific safety requirements apply to this TIP. Mill safety requirements should be followed when installing monitoring devices or collecting information relative to press section clothing.

Content

NOTE 1: See Table 1 for SI metric conversion factors.

Table 1. Conversion factors for SI units

Quantity	Customary units	Multiply by	To obtain
Length	feet (ft)	0.3048	meters (m)
Mass	ounces (oz)	28.3495	grams (g)
	pounds (lb)	0.45359	kilograms (kg)
	tons (=2000 lb)	0.90718	tonne (metric ton) (t)

Significance

The techniques described can be used to effectively manage paper machine clothing to optimize total paper machine economics. Clothing cost is relatively small when compared to the profits generated by added production. Good clothing management can improve mill profits by thousands of dollars per year.

Table 2. Daily data sheet.

Machine _____ *Mill* _____ *Location* _____

Date	*Production tons/day*	*Steam use, 1000 lb/day*	*Machine speed, ft/min*	*Press moisture*	*Wet-end breaks*
1	256	1128	2500	59.0	2
2	255	1080	2490	59.2	3
3	226	1032	2510	59.3	0
4	278	1236	2580	59.3	4
5	266	1224	2570	59.0	2
6	245	1120	2370	59.5	3
7	256	1296	2480	59.7	5
8	186	1104	2470	59.4	4
9	110	1148	2540	59.6	2
10	247	1128	2390	59.8	6
11	257	1209	2490	59.5	1
12	217	1032	2400	58.9	3
13	255	1296	2470	58.8	4
14	245	1104	2490	59.2	2
15	149	1080	2180	59.2	3
16	116	844	2260	59.5	0
17	226	1132	2450	59.7	2
18	225	1080	2450	59.4	4
19	279	1224	2570	59.8	3
20	251	1224	2440	60.1	1
21	261	1080	2510	59.2	5
22	270	1132	2500	58.7	4
23	257	1128	2500	58.9	2
24	108	800	2100	58.9	2
25	119	648	2100	59.2	8
26	266	1200	2470	59.3	4
27	265	1132	2580	59.5	3
28	260	1132	2510	59.4	4
29	258	1080	2500	59.7	5
30	243	1032	2360	59.8	3

Table 7. Before/after difference work sheet

	Production	*Steam. lb/ paper, lb*	*Speed*	*Press moisture*	*Wet end breaks*
Pickup Felts					
A Felt	231 (+9)	2.49 (+0.02)	2501 (+86)	59.3 (+0.1)	2.8 (–)
B Felt	222 (–9)(–10)	2.51 (–0.02)(–0.23)	2415 (–86)(–6)	59.4(–0.1)(–0.1)	2.8 (–) (+1)
C Felt	232 (+10)	2.28 (+0.23)	2421 (+6)	59.3(+0.1)	3.8 (–1)
Summary					
A Felt	+9	+0.02	+86	+0.1	–
B Felt	–9.5	–0.125	–46	–0.1	+0.5
C Felt	+10	+0.23	+6	+0.1	–1

Comments

1. Felt B appears inferior to Felts A and C in all regards except number of breaks per day.
2. Felt A appears best overall.
3. Data over a much longer period of time is needed to reach solid conclusion.

Keywords

Paper machines, Clothing, Performance

Additional information

Effective date of issue: November 27, 2001.
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