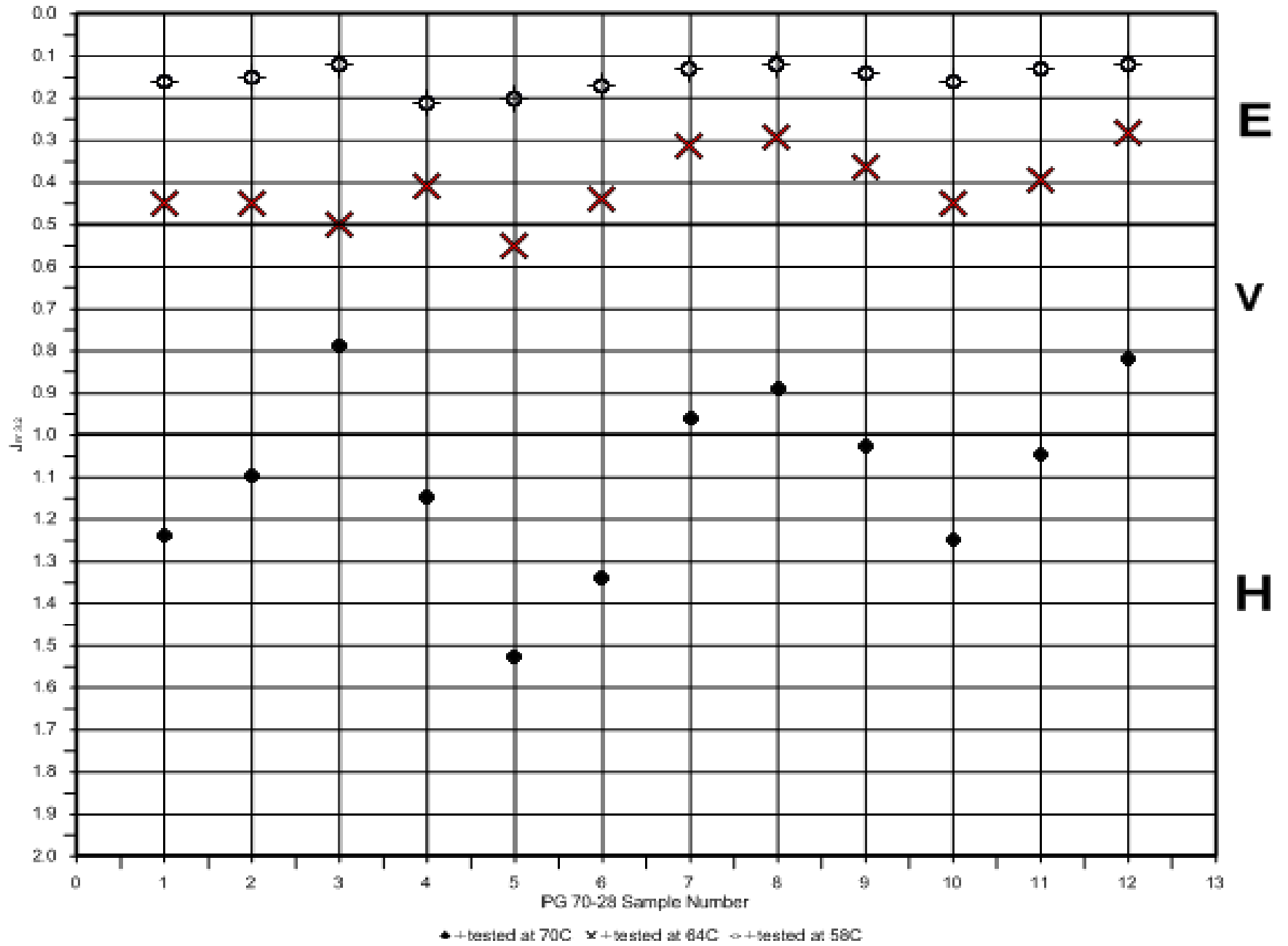




M320 compared to M332

Pacific Coast Conference on
Asphalt Specification
May 2016

PG 70-28 tested M332



PG 64-28 and PG 70-28

BINDER	RESULT #	TEMP	%REC 3.2	Jnr 3.2	Jnr diff %	GRADE	Polymer Line
9	12	64	1.24	3.34	15.3	PG64S-28	BELOW
20	9	64	81.2	0.26	38.0	PG64E-28	ABOVE
21	12	64	25.7	1.59	39.6	PG64H-28	BELOW
22	12	64	27.1	2.07	62.5	PG64S-28	ABOVE
23	12	64	46.9	1.39	100.6	PG64H-28	ABOVE
24	12	64	44.5	1.59	108.7	PG64H-28	ABOVE
25	12	64	17.4	2.41	52.7	PG64S-28	BELOW
26	16	64	43.2	1.56	61.2	PG64H-28	ABOVE
27	4 THEN 10	64	3.5	3.48	30.7	PG64S-28	BELOW
28	12	64	54.5	1.14	83.0	PG64H-28	ABOVE
29	12	70	42.0	1.1	70.4	PG70H-28	ABOVE
30	12	70	59.3	0.97	60.6	PG70V-28	ABOVE
31	12	70	60.6	0.42	110.3	PG70E-28	ABOVE
32	12	70	43.6	1.38	96.7	PG70H-28	ABOVE

PG 64-28 and PG 70-28 tested lower temperature

BINDER	RESULT #	TEMP	%REC 3.2	Jnr 3.2	Jnr diff %	GRADE	Polymer Line	ER	PAV DSR 3°LOWER
9	12	58	5.5	1.38	12.2	PG58H-28	BELOW		5285
20	9	52	79.5	0.10	12.7	PG52E-28	ABOVE	84.2	
21	12	58	41.1	0.60	27.3	PG58V-28	ABOVE	72.8	4594
22	12	58	44.8	0.74	52.5	PG58V-28	ABOVE		2367
23	12	58	61.9	0.49	49.2	PG58E-28	ABOVE		2677
24	12	58	60.0	0.11	8.0	PG58E-28	ABOVE		2520
25	12	58	28.9	0.95	37.7	PG58V-28	BELOW	74.1	2815
27	4 THEN10	58	13.2	1.23	27.1	PG58H-28	BELOW	65.9ORG	2963
28	12	58	73.8	0.35	26.6	PG58E-28	ABOVE	92.7ORG	1200
29	12	64	59.5	0.41	46.9	PG64E-28	ABOVE	79.3	2931
30	12	64	61.7	0.51	66.3	PG64E-28	ABOVE	79.1	2818
31	12	64	74.3	0.15	60.7	PG64E-28	ABOVE	78.9	2084
32	12	64	58.7	0.52	46.8	PG64V-28	ABOVE	79.9	2895
32	12	64	58.7	0.52	46.8	PG64V-28	ABOVE	79.9	2895



Concerns

- M332 designed for modified Binders so what if neat binders are being supplied and working
- Many modified binders are working according to the agencies yet under M332 “polymer line” they would be failing. Do you just lower the base temperature so that the binder is now above the line?
- Percent difference Jnr is great concern. High modified it is not uncommon to be greater than 75. Did anyone relate this 75 to current performance on roads?



Concerns

- The study was taking M320 and grading them out as M332. This is not what going to happen if M332 is specified in a contract.
- The MSCR has greater reproducibility than Elastic Recovery, which is the price adjustment test
- The difference in MSCR results are not going to get better because the machine is doing all the calculations and generating the numbers, unlike the DSR in M320 which improved because people's skill improved.



Concern

- PAV temperature is different for some grades than currently testing on that binder.
- PAV DSR is tested at different temperature and the 6000 is an issue. PAV DSR is more crude related. What does the PAV DSR really tell us?
- Without the reduction in plus testing, just adding the MSCR by going to M332 is increasing the work in the laboratory



Concern

- Some agencies want polymer in all the binders or most. If one of the binders is the standard how do you show polymer present? Are you going to bump the grade and then increase the grades?
- What pavement distress are being addressed in M332
- Rutting is determined by mix test currently. Is the mix test not doing it job?
- What is the dollar justification for going to M332?
- More work needs to be done before accepting MSCR or M332