

## Loss of TIH Product in Head and Shell Punctures, Cracks & Tears

Item	Date / Location	USA	Train Speed	Method of Operation	Fatal	Injured	Spec	Gals Lost	Cause of Loss	Type of Accident
<b>Chlorine (1965-2005)</b>										
12	11/18/67 Waterford, AL		30	Dark	0	0	105A500W	10,000	Shell rupt, top fittings damaged by fire <sup>1</sup>	
74	12/11/71 Corbin, LA		33	Dark	0	0	105A500W	3,500	Head crack <8"	Derailment
86	3/3/73 Loos, BC	No	40	Time Table/Train Order <sup>2</sup>	0	1	105A500W	2,800	Head tear <8"	Derailment
136	2/26/78 Youngstown, FL		40	Dark	8	138	105A500W	17,000	Head punc. 8 to 18"	Derailment
156	4/8/79 Milligan, FL		30	Dark	0	1 <sup>3</sup>	105A500W	8,500	Head tear 8 to 18"	Derailment
168	11/10/79 Mississauga, ON	No	55	CTC	0	0	105A500W	15,500	Head punc. 8 to 18"	Derailment
200	9/7/86 Collins, MS		45	Dark	0	4	105A500W	17,000	Head punc. <8"	Derailment
225	4/11/96 Alberton, MT		38	TCS	1	150	105A500W	11,700	Head crack >18"	Derailment
251	6/28/04 MacDona, TX		45	TCS	3	66	105J500W	10,000	Head puncture	Side Collision - Struck Train
252	1/6/05 Graniteville, SC		47	Dark - TWC	9	631	105J500W	9,200	Shell puncture	Collision - Striking Train

<sup>1</sup>Appears not to belong in data set, account likely fire rather than mechanical damage.

<sup>2</sup>Given the year of the accident and the remote location it is suspected that the method of operation may have been time table/train orders.

<sup>3</sup>Several cars also released anhydrous ammonia in this incident.

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<p>Chlorine summary – Median speed: 40 mph  Avg. speed: 40.3 mph</p> <p>Percent U.S. Dark: 60%  Dark % total train miles: 12.1%</p> <p>Total fatal (% of total chlorine): 21 (100%)  Total injured (% of total chlorine)<sup>4</sup>: 991(96%)</p>										

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<sup>4</sup>Remainder of injuries were in losses from valves and fittings, etc.

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<b>Anhydrous Ammonia (112J340W, 112S340W, 105J300W, 1981-2005)<sup>5</sup></b> (reverse chronological order)										
243	1/18/02 Minot, ND		41	Dark-TWC	1	333	105J300W	29,776	Head tear >18"	Derailment
242							105J300W	29,447	Head punc. 8 to 18"	
241							105J300W	29,473	Rupture shell and head	
240							105J300W	29,006	Rupture head sep'd from shell	
239							105S300W	29,213	Shell rup. w/separation	
238							105J300W	29,481	Shell rup. w/separation	
237							105J300W	29,528	Shell rup. w/separation	
236							105J300W	14,700	Shell rupture	
233	2/2/01 Red Deer, AB	No	4	Industry	1 <sup>6</sup>	0	112J340W	32,800	Shell rupture	Derailment
230	9/23/99 Britt, ON	No	35	CTC	0	3	112J340W	24,762	Head punc.<8" <sup>7</sup>	Derailment
229	7/24/99 Katka, ID		20	TCS	0	0	105S300W	19,688	Head punc. 8 to 18"	Derailment
224	2/28/96 Randall, MN		50	TCS	0	0	112J340W	15,000	Shell rupture	Derailment
223	1/5/96 Saline County, IL		58	TCS	0	0	105S300W	10,505	Shell rupture	Derailment
221	7/6/92 Julliard, TX		40	Dark - TWC	0	2	112S340W	33,900	Head punc. 8 to 18"	Derailment

<sup>5</sup>The retrofit mandated by RSPA Docket No. HM-144 was required to be completed 12/31/80. This table addresses accidents after that date involving retrofitted cars authorized for this service.

<sup>6</sup>Corrected to 1 fatality and 0 non-fatal based on information from Transport Canada.

<sup>7</sup>Half head shield.

Item	Date / Location	USA	Train Speed	Method of Operation	Fatal	Injured	Spec	Gals Lost	Cause of Loss	Type of Accident
217	2/20/89 Bordulac, ND		39	Dark - TWC	0	2	112S340W	30,000	Shell rup.w/separation	Derailment
216							112J340W	30,000	Shell rup. & multiple top fittings broken	
215							105S300W	15,000	Shell rupture	
214	11/25/88 Fruitvale, TX		35	TCS	0	0	112S340W	30,000	Shell rupture	Derailment
<p>Anhydrous Ammonia Summary - Median speed: 39 mph  Avg. speed: 35.7 mph</p> <p>Percent U.S. Dark: 33.3%  Dark % total train miles: 12.1%</p> <p>Total fatal (% of total ammonia): 2 (100%)  Total injured (% of total ammonia): 340 (100%)</p>										