

European Union Agency for Railways  
Safety Information System

## Safety problems with composite brake blocks

The Swedish NSA, Transportstyrelsen, has got information from the Swedish railway undertaking Green Cargo (the largest Swedish freight company) about three reported incidents in winter conditions concerning trains with wagons using composite brake blocks.

1. The first incident was an unpermitted passing of a STOP-signal outside Gävle. The train had a speed of 18 km/h and braking was applied 200 m before the signal. No retardation was obtained and the train passed the signal with 20 m, after emergency braking. The train consisted of 100 % wagons equipped with composite brake blocks of type C810.
2. The second incident was a train that reported poor braking performance after a retardation check. The same driver was driving the train both in loaded condition and in empty condition. In loaded condition the brake performance was 10 % below the calculated value. In empty condition the brake performance was 18 % below the calculated value. The train consisted of 100 % wagons equipped with composite brake blocks of type C810.
3. The third incident occurred between Boden and Haparanda in northern Sweden on the 3<sup>rd</sup> of February 2017. The weather was -2°C with whirling snow. The train consisted of eight wagons. Two of the wagons had four axles and composite brake blocks (C810). These wagons were placed first and last in the train. The other six wagons had two axles and cast iron brake blocks. The “composite wagons” were heavy and loaded with dangerous goods. The weight of the composite wagons was 42% of the total weight of the wagons and had 41% of the total brake weight of the wagons.

The driver braked every 15 minutes but still experienced that the train's braking capability was decreased during the journey. When the train came to Haparanda the wagons were checked. The cast iron blocks had no build-

up of ice and snow but the composite blocks had. It was possible to move the last wagon without having the brakes released - the wagon appeared to be unbraked.

Green Cargo has concluded that the reason that the train could finish the journey probably was thanks to the wagons with cast iron blocks having enough braking capacity for the whole train. Green Cargo sees a severe risk in having a wagon loaded with dangerous goods as the last wagon in the train when the wagon could lose its braking capability in winter conditions due to composite brake blocks.

Besides these three incidents the drivers at Green Cargo have reported about experienced operational risks in winter conditions with trains consisting of wagons equipped with 100 % composite brake blocks, but without leading to incidents.

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