

Annual Report
Aircraft Deicing
Winter Season 2025/2026 at Munich Airport



Contents

1. Capacities.....	2
2. Deicing operations.....	2
3. Consumption of deicing fluid	4
4. Outlook for next winter.....	5
5. Explanations.....	5

1. Capacities

For deicing only EFM employees have been deployed.
26 deicing vehicles were available.

2. Deicing operations

During the 2025–2026 winter season (October through April), EFM deiced a total of 8,628 aircraft, compared to a planned figure of 6,900 and 6,937 in the previous year.

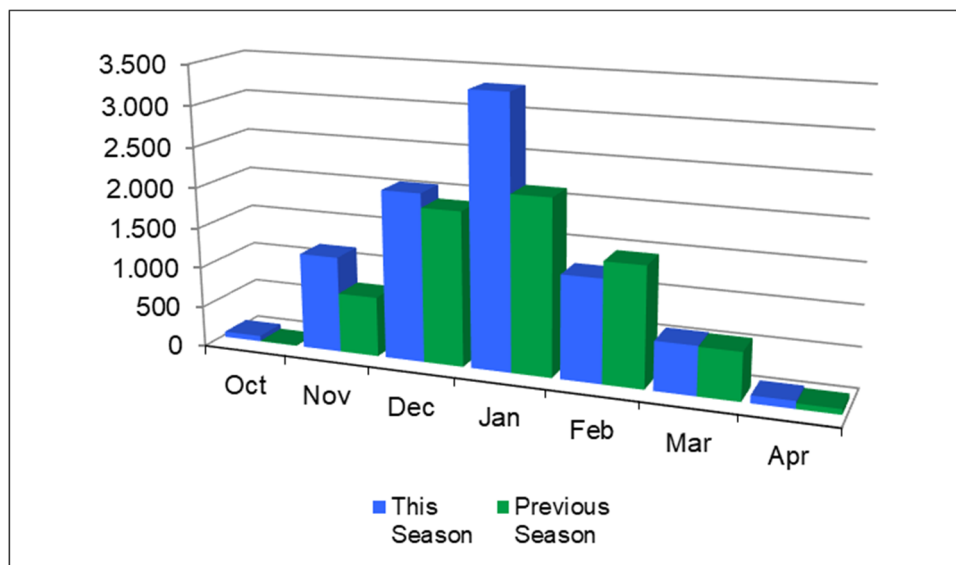
EFM's deicing teams were deployed on 162 out of 212 days throughout the season. The busiest day was December 24, 2025, with 250 deicing operations.

Due to precipitation, anti-icing with ADF Type IV (>10,000 liters) had to be performed on 28 days (previous year: 17). A two-step procedure was used in 22% of all deicing operations, compared to 26% in the previous season.

Table 1: Deicing per month

Month	This Season	Previous Season
Oct	68	6
Nov	1.190	739
Dec	2.075	1.903
Jan	3.332	2.159
Feb	1.268	1.473
Mar	601	590
Apr	94	67
Total	8.628	6.937

Diagram 1: Deicing treatments per month

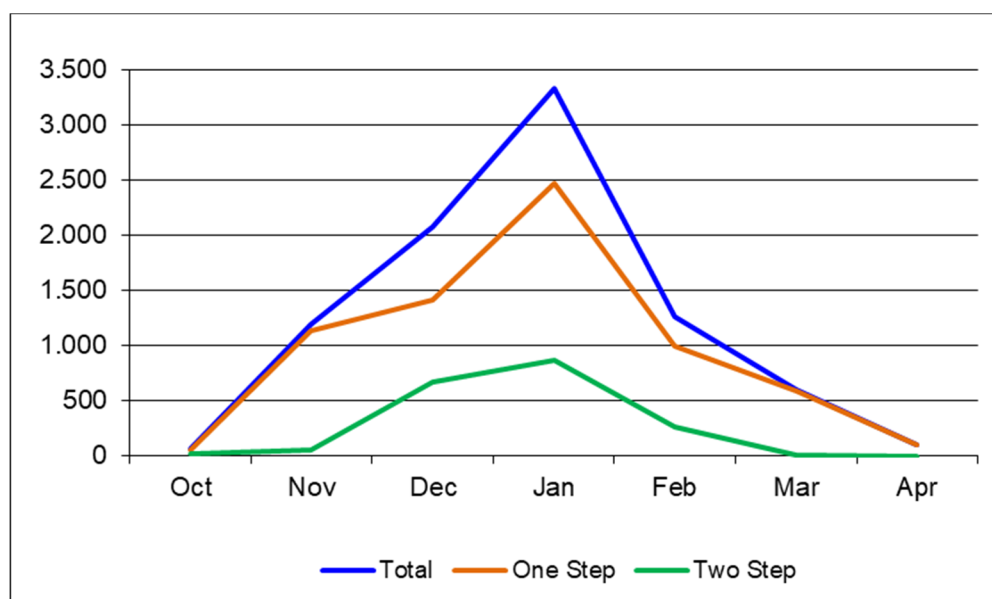


Out of the total 8,628 de-icing operations (including repeated treatments), 8,582 were carried out at the remote de-icing areas near the runway heads, representing 99.5%, while only 46 operations (0.5%) took place on the apron.

Based on data from previous seasons, a de-icing rate of 12% was projected for all departures of our COLD contract partners during the winter schedule. For non-COLD customers, a 7% probability was anticipated.

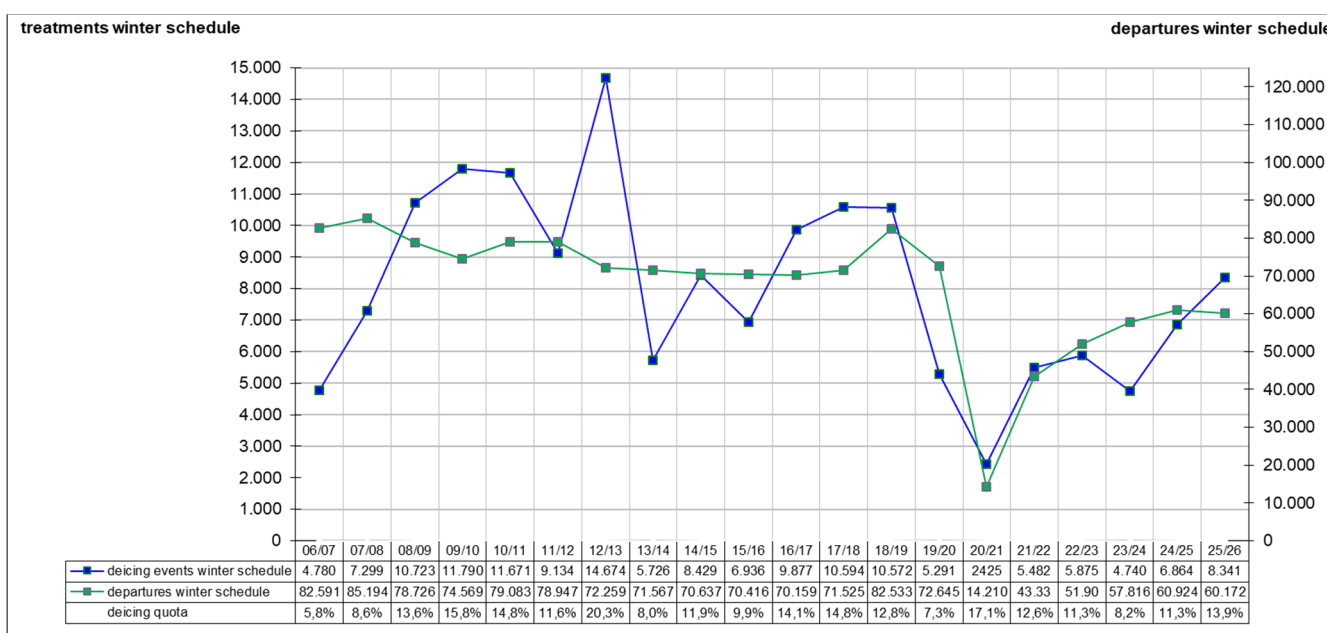
The actual results show a de-icing rate of 15.2% for COLD partners and 7.0% for non-COLD customers. Over the course of the entire winter season, the overall de-icing rate for all commercial flights was 13.9%, compared to 11.3% in the previous season.

Diagram 2: Development of deicing treatments



The diagram below shows deicing numbers as of the last years during the winter schedule.

Diagram 3: Number of departures and deicing treatment



3. Consumption of deicing fluid

Total consumption of ADF Type I Mix during the 2025–2026 winter season amounted to 4,478 cubic meters, up from 3,041 cubic meters in the previous season. By comparison, 628 cubic meters of ADF Type IV were used, slightly up from 519 cubic meters the previous year.

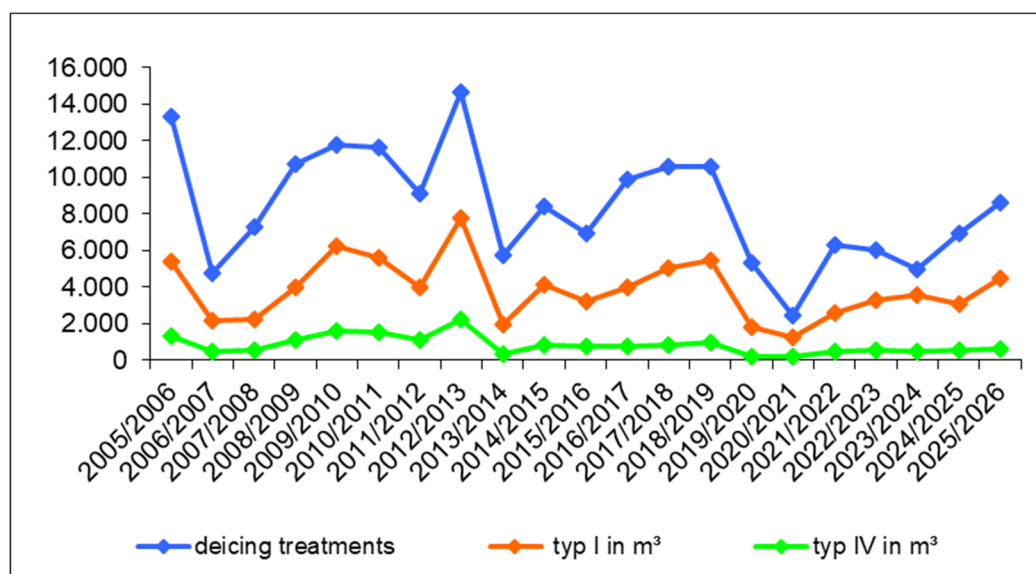
Of the 4,478 cubic meters of ADF Type I Mix consumed, 2,958 cubic meters consisted of recycled material, meaning that 66% of total Type I usage was supplied by recycled fluid.

Average consumption per de-icing treatment was 519 liters of ADF Type I Mix (previous season: 438 liters) and 334 liters of ADF Type IV for two-step procedures (previous season: 295 liters). As a share of total fluid consumption, ADF Type IV decreased slightly to 12.3%, compared to 15.0% in the previous season.

Table 1: De-icing treatments und average consumption per aircraft category

Aircraft cat.	Treatments total		Treatments 2-Step		ADF Typ I (liters/treatments total)		ADF Typ IV (liters/2-step treatments)	
	2023/2024	2025/2026	2023/2024	2025/2026	2023/2024	2025/2026	2023/2024	2025/2026
0	63	100	18	21	241	288	167	150
1	646	789	194	175	261	321	157	169
2	5.373	6.586	1.395	1.439	362	426	253	274
3	74	81	23	24	723	843	493	561
4	781	1.072	183	222	1.102	1.233	755	841
Total	6.937	8.628	1.813	1.881	438	519	295	334

Diagram 4: deicing events and fluid consumption of the last years



4. Outlook for next winter season

EFM currently sees no fundamental changes in service delivery. Despite considerable seasonal fluctuations, no direct effects of climate change on the average de-icing rate have been identifiable so far. Although such effects did not play a significant role in the 2025/2026 season, it is becoming apparent that EFM's operations will increasingly be shaped by extreme weather events – less by prolonged winter weather conditions than by short-term, weather-related peak loads.

To remain permanently operational even under extreme weather conditions, EFM is continuously investing in state-of-the-art de-icing technology. In the 2026/2027 winter season, a total of 26 de-icing vehicles will be deployed, including 11 vehicles equipped with the latest electric drive technology, which allow all de-icing operations to be carried out fully electrically.

The use of an additional de-icing area at the end of the runways (the "Opposite De-icing Area") continues to be designated exclusively for single-runway operations.

De-icing fluids from the manufacturer Clariant continue to be used without change. Starting next season, the previous Type IV de-icing fluid will be replaced by Clariant Safewing MP IV Launch Plus (100%), which offers improved performance.

5. Explanations

ADF Aircraft deicing fluid

ADF Type I Aircraft deicing fluid Clariant Safewing MP I LFD (80 % glycol, 20 % water). EFM uses ADF Type I in a mixture of 55/45 (Type I/water) which means a proportion of 44 % glycol and 56 % water.

ADF Type IV Aircraft deicing fluid Clariant Safewing MP IV LAUNCH PLUS. EFM uses Type IV only pure and only as anti-icing fluid (to protect the aircraft against new icing).

Aircraft categories

A/C cat.	MTOW (= Max. take-off weight, metric tons)
0	General aviation aircraft
1	< 25
2	25 < 100
3	100 < 200
4	> 200

COLD partner Deicing of customers who have a COLD contract with EFM. COLD customers pay a flat fee per season for de-icing and a small sum for each de-icing treatment.

Non-COLD customer Deicing of customers who do not have a COLD contract with EFM. They do not pay a flat fee but higher prices for each de-icing treatment than COLD partners.

Remote areas Special areas near the ends of the runways which are used only for de-icing and as entries to the runways. ADF, which is used on these areas, can be collected and recycled.

Two-step procedure

Two-step de-icing. The first step (the actual de-icing) removes ice, snow etc. from the aircraft. In the second step (anti-icing), the aircraft is re-sprayed, either with Type I de-icing fluid or with Type IV fluid to protect the relevant surfaces against fresh accumulations.

Note: Minor differences in the tables result from rounding differences.