1 General economy with reference to the plastics industry

In its editions since 28 February 2022, KI Plastics Information Europe has been continuously reporting on the effects of the war in Ukraine on plastics markets, see <u>https://www.kiweb.de/</u>. The Ukraine war is resulting in exponentially rising prices for prices of oil, gas, electricity, raw materials, transport, and logistics. Delays and distortions to trade flows are slowing down imports from Asia. This leads to more increased prices. Many processors and their clients are greatly unnerved and are jamming on the brakes with their orders. The continuing high price structure for plastics and subdued JIT calls mean that the quotes are extremely volatile.

In its annual economic press conference on Ash Wednesday, 2 March 2022, the plastics processing industry association (Gesamtverband Kunststoffverarbeitende Industrie e. V. (GKV)) took stock of plastics processing in Germany in 2021, see

<u>https://www.gkv.de/de/service/presse/</u>. Last year, turnover in the German plastics processing sector rose by 12.6 % to \in 69.4 billion. In total, 15 million tonnes (+ 5.6 %) of plastic were processed in Germany in 2021, 2.2 million tonnes of which were recycled plastics. The number of employees is stable, at just under 322,000.

Plastics-processing companies are under great pressure on earnings. The reasons for this are the exorbitant cost explosions for raw materials and energy and the many delayed deliveries and the resultant order cancellations, this can be seen, for example, in the automotive supply industry. The annual balance for 2021 in summary: German plastics processing is staying on track towards the circular economy in stormy times.

2 Primary markets - standard plastics

Until the middle of February the markets were shaped by the pandemic. The markets can only be described as inconsistent, even though they were gradually consolidating. Although supplying processors with plastics is improving continuously, short supply is still coming up against subdued demand for virgin grades.

The February demand from plastics processors is described as subdued by some participants in the market. On the one hand, this is due to the depletion of stocks and, on the other, more complex products cannot be manufactured because of difficulties in supplying components, as a result of which the plastic processing still required is delayed. But above and beyond this, we must not forget that the plastics processors' order books are healthily full, meaning that there is a resultant increased demand for plastic products.

Since 24 February, the Ukraine war has been further confusing the existing markets for standard plastics. Whereas some processors are slowing down due to the uncertain situation, others are trying to fulfil their foreign orders as quickly as possible.

In February 2022 the EUWID average price of $1,925 \in /t$ was $46 \in /t$ lower than in the previous month $(1,971 \in /t)$, see Table 1. In a year-on-year comparison, it can be seen that the average quotes from February $(1,925 \in /t)$ were $552 \in /t$ higher than those of the previous year $(1,373 \in /t)$, see EUWID, <u>www.euwid-recycling.de</u>. In comparison to the previous month, the PE quotes were $50 \in /t$ lower, and PS $100 \in /t$ lower. As far as PVC was concerned, tube grade was quoted $120 \in /t$ higher, whereas films and cables were traded $80 \in /t$ lower.

PET: Demand for PET is still high, even though the management of the shortages improved in February. Until mid-February, the markets were more balanced than in previous months; supply with virgin grade had improved. At the start of the month, demand for PET was higher than in the two previous months, which compensated for the reticence to purchase which had prevailed until then. With the start of the Ukraine war, however, the PET markets became turbulent; prices are volatile. The February quotes are therefore only a first guide to the events to come. In February 2022, packaging PET was quoted on average at 1,695 \in /t and thus 15 \in /t higher than in the previous month, see <u>https://www.kiweb.de/</u>.

Prices in €/t	Feb. 2022	Jan. 2022	Dec. 2021	Nov. 2021	Oct. 2021	
LDPE film grade	1850- 2000	1900- 2050	1900- 2050	1900- 2050	1800- 1950	
LLDPE film grade	1800- 1950	1850- 2000	1850- 2000	1850- 2000	1750- 1900	
HDPE injection moulding	1550- 1750	1600- 1800	1700- 1900	1700- 1900	1600- 1800	
HDPE blow	1500- 1700	1550- 1750	1650- 1850	1650- 1850	1550- 1750	
moulding	1500- 1700	1550-1750	1000-1000	1050-1850	1550-1750	
PS crystal clear	2050- 2150	2150-2250	2020- 2120	2000- 2100	1720- 1820	
PS high impact	2100- 2200	2200-2300	2100- 2200	2100- 2200	1820- 1920	
PP homopolymer	2050- 2250	2100-2300	2100-2300	2100-2300	2050-2250	
PP copolymer	2100- 2300	2150-2350	2150- 2350	2150- 2350	2100-2300	
PVC tube grade	1800- 1900	1680- 1780	1680- 1780	1680- 1780	1550- 1650	
PVC film/cables	1700- 1800	1780- 1880	1780- 1880	1780- 1880	1650- 1750	
Average Price	1925 ± 227	1971 ± 247	1968 ± 203	1966 ± 202	1834 ± 212	

Table 1: Standard plastics prices according to EUWID over the past five months, listed in €/t.

3 Secondary plastics markets in the plasticker price index

The plasticker internet platform, see <u>http://plasticker.de</u>, publishes quotes on an hourly basis. The present market report indicates the final monthly prices. It is only possible to represent the preliminary prices for March 2022; they will not become definitive until early April 2022. The two quotes stated for March 2022 below indicate only an interim situation, see the left-hand column in Tab. 2 and Tab 3.

3.1 plasticker: Standard plastics

Clearly falling plastic quotes in February: the average price was quoted at 584 €/t and was thus 133 €/t lower than that of the previous month (717 €/t), see Table 2. The average price for February 2022 (584 €/t) was 94 €/t above that of the previous year (490 €/t). There were significant price falls of greater than ±40 €/t for: HDPE regrind 160 €/t, HDPE regranulates 100 €/t, LDPE regranulates 200 €/t, PP regrind 120 €/t, PP regranulates 110 €/t, PS regrind 110 €/t, PS regranulates 230 €/t and PET regrind mixed colours 370 €/t. The price index is characterised by adequate demand for plastic.

The preview of the March quotes is surprising because of the clear price rise by 144 €/t, see Table 2. The price index of 17.03.2021, shows satisfactory demand for plastic to date.

	March ⁶ 22	February 22	January 22	Dec. 21	Nov. 21	Feb. 21
HDPE regrind ¹	720	590	750	600	580	520
HDPE regranu- lates⁵	1100	950	1050	920	960	800
LDPE bale goods ²	450*	120*	470*	350*	370*	140
LDPE regrind ¹	650*	430*	480*	470*	430*	470
LDPE regranu- lates⁵	1060	820	1020	850	890	600
PP bale goods ³	380*	250*	-	310*	380*	350*
PP regrind ¹	840	530	650*	630	730*	520
PP regranulates ⁵	1470	970	1590	1400	1530	740
PS regrind ⁴	880*	610	720*	700*	760*	510
PS regranulates ⁵	1280	1040	1270	1160	990	8S80
PVC_P regrind ¹	650*	660*	690*	490*	0*	450*

Table 2: Standard plastics price according to plasticker; listed in \notin/t .

PVC_U regrind ¹	0*	500*	630*	480*	0*	400
PET bale goods	300*	360*	0*	70*	90*	100*
PET regrind mixed colours	410	350	720	480	520	380
Average Price	(728)	584	717	636	588	490

*: Supply figure too low to attain statistical significance; ¹: equivalent to the grade "post-industrial mixed colours"; ²: equivalent to K49; ³: equivalent to K59; ⁴: equivalent to "standard, mixed colours"; ⁵: equivalent to the grade "regranulates, black"; ⁶: preview (may be amended by additional quotes)

3.2 plasticker: Technical plastics

The quotes are on a rollercoaster ride; highs are followed by lows, which, in turn, are followed by highs again. For February 2022, there was an average price of $1,723 \notin t$, which was 255 $\notin t$ lower than that of the previous month (1,978 $\notin t$), see Table 3. The average price for February 2022 (1723 $\notin t$) was 453 $\notin t$ above that of the previous year (1,270 $\notin t$).

These plastics show significant price falls of more than ± 70 €/t: ABS regrind 250 €/t, ABS regranulates 350 €/t, PC regrind 160 €/t, PC regranulates 540 €/t, PBT regrind 170 €/t, PBT regranulates 360 €/t, PA 6 regranulates 150 €/t, PA 6.6 regrind 150 €/t, PA 6.6 regranulates 510 €/t, POM regrind 300 €/t and POM regranulates 90 €/t. The price index shows a satisfactory demand for plastic.

The probable average price in March 2022 (2,058 \in /t) is quoted much higher than in the previous month (1,723 \in /t). The March price index of 17.03.2022 shows adequate demand for plastic.

	March ⁶ 22	February 22	January 22	Dec. 21	Nov. 21	Feb. 21
ABS regrind	1020*	810	1060	950	880	550
ABS regranu- lates⁵	2580	1980	2330	2160	1900	1480
PC regrind	1470*	1080	1240	1060	1010	830
PC regranulates ⁵	3090	2640	3180	3100	2560	1850
PBT regrind	810*	590	760*	750*	680*	450
PBT regranulates	2710	2330	2690	2170	2170	1810
PA 6 regrind	860*	930	960*	1000	950*	890
PA 6 regranu- lates⁵	2720	2450	2600	2400	2480	2000
PA 6.6 regrind	1330*	960	1110*	1200	1190	930
PA 6.6 regranu- lates ⁵	3910	2810	3320	3250	3190	2130
POM regrind	1140*	760	1060*	800	800*	610
POM regranu- lates ⁵	3010*	3340	3430	2840	2790	1710
Average Price	(2058)	1723	1978	1807	1717	1270

Table 3: Technical plastics price according to plasticker; listed in €/t.

⁵: equivalent to the grade "regranulates, black"; ⁶:preview (may be amended by additional quotes).

4 Secondary Plastics Markets

A difficult situation is becoming even more difficult. Marked deficits in transport and logistics have been highlighted by coronavirus. Goods are delivered late; goods are piling up at ports. And then there is a shortage of containers, there aren't enough HGVs and drivers are in demand.

And, to cap it all, the Ukraine war is making the difficult situation even tougher. Everywhere, there is a spectacular shortage of labourers and skilled workers. And the prices for energy and raw materials are going through the roof. It will be fascinating to see the extent to which these price rises can be passed on to the products. The quotes for recyclates are extremely volatile.

4.1 Plastic wastes

In February, EUWID shows that the price falls for virgin grades were not reflected in the secondary markets, whereas plasticker follows the price trend of the virgin grades. In spite of different representations, both results are correct: secondary plastics remained stable and were traded at high prices, whereas the price of virgin grades fell, which is also shown in plasticker. Demand for plastic wastes and recyclates is reported as high by EUWID, whereas plasticker identified only adequate demand.

In February, too, the secondary plastics markets were shown to be inconsistent in the EUWID price index; they are difficult to assess. EUWID identifies relatively small price rises, which, furthermore, are often only one-sided and at the lower price margin.

In the post user sector, we are still experiencing price rises in small stages, see EUWID price index for waste plastic Germany. In this context, the market changes for February appear slight; stable markets can be derived from this. Selected qualities of plastic wastes are quoted between $5 \in /t$ and $10 \in /t$ higher.

4.2 Recyclates

Recyclers are feeling hardly any market changes. The changes visible from the price indices barely resonate with the plastics recyclers. The still scarce input of plastic waste prevents plastic recyclers from operating at full capacity. Plastic wastes have never been in such demand as now. Recyclers are still achieving recyclate prices that are above those of the virgin grade. Plastic recyclers are hardly able to satisfy the many requests for recyclates.

The boom in the demand for recyclates continues unabated. The demand for recyclates exceeded the supply by far. Plastics recyclers report that their recyclates are sold out months in advance. Prices for regranulates are still reaching those for virgin grade, or are even exceeding them.

Selected qualities of regrind are quoted between $5 \notin t$ and $20 \notin t$ higher, see EUWID price index for waste plastic Germany. Whereas PVC regrind is quoted unchanged, the PS regrinds have reported price rises of $10 \notin t$ to $20 \notin t$. The two regrinds from PE production wastes are quoted as stable. The regrinds from PP are quoted at $5 \notin t$ to $10 \notin t$ higher.

4.3 PET Recycling

The demand for PET recyclates is booming in all areas. To make this clear, these are the applications in beverage bottles, non-beverage bottles, deep-drawn products, stripping, films and fibres. Furthermore, we have a major trend in packagings towards PET, which is replacing other plastics. And, moreover, there are also the recyclate usage quotas, which can be met only with PET recyclates for food packagings.

Demand for recycled PET (r-PET) greatly exceeds supply. Major market players secure the quantities of r-PET that they require for use in beverage bottles. And every day, new inquiries for the use of recycled PET arrive.

The shortage of PET is continuing to drive the prices both for virgin grade and for recyclates. The virgin grade prices are being surpassed by the prices for regrinds and regranulates. At the peak, up to 2,400 \in /t are charged for food-safe regranulates; regrinds are quoted at up to 1,850 \in /t. Bottle prices are rising; the prices for used PET single-use bottles changed in February as follows: PET transparent +25 \in /t, PET mixed +15 \in /t, and PET coloured +5 \in /t. Detailed monthly reports on the PET prices for virgin grade and used bottles can be found in EUWID and KI Plastics Information Europe.

5 Explanation on the price quotes

A detailed discussion with information of price indices for virgin grades and waste plastics as well as precursor products can be found in EUWID Recycling and Disposal see <u>www.euwid.de</u>, or in EUWID Plastics <u>www.euwid-recycling.de</u>. EUWID: No guarantee for any of the prices.; prices ex station. As a rule, the prices quoted refer to quantities in excess of 20 tons.

The quotes for secondary prices, which are updated on an hourly basis, can be calculated using the price lists that are derived from the quotations published in the raw material exchange plasticker, see <u>www.plasticker.de</u>. The prices listed in this index are quoted without reservation - as the majority of the quotes submitted are not necessarily equivalent to the sales prices. Plasticker offers the quality grades regrind and regranulates both as virgin materials and as secondary goods. The term 'bale goods' refers to waste plastics only. Furthermore, plasticker does not distinguish between the following grades: transparent, mixed colours or colour-separated. Therefore, the information provided by plasticker may indicate different market behaviour than the prices quoted by EUWID

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