SK Materials Co., Ltd. and its subsidiaries

Consolidated Financial Statements
for the period from December 1, 2021 (date of incorporation)
to December 31, 2021
with the Independent Auditor's Report

Table of contents

Ernst & Young Han Young
2-4F, 6-8F, Taeyoung Building, 111, Yeouigongwon-ro,
Yeongdeungpo-gu, Seoul 07241 Korea

Tel: +82 2 3787 6600
Fax: +82 2 783 5890
ey.com/kr

Independent auditor's report

SK Materials Co., Ltd.
The Shareholders and Board of Directors

Opinion

We have audited the consolidated financial statements of SK Materials Co., Ltd. (the "Company") and its subsidiaries (collectively referred to as the "Group"), which comprise the consolidated statement of financial position as of December 31, 2021, and the consolidated statement of comprehensive income, consolidated statement of changes in equity and consolidated statement of cash flows for one-month period ended December 31, 2021, and notes to the consolidated financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Group as of December 31, 2021, and its consolidated financial performance and its consolidated cash flows for one-month period ended December 31, 2021 in accordance with Korean International Financial Reporting Standards ("KIFRS").

Basis for opinion

We conducted our audit in accordance with the Korean Auditing Standards ("KGAAS"). Our responsibilities under those standards are further described in the Auditor's responsibilities for the audit of the consolidated financial statements section of our report. We are independent of the Group in accordance with the ethical requirements that are relevant to our audit of the consolidated financial statements in the Republic of Korea, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Responsibilities of management and those charged with governance for the consolidated financial statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with KIFRS, and for such internal control as management determines is necessary to enable the preparation of the consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Group's financial reporting process.

Auditor's responsibilities for the audit of the consolidated financial statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with KGAAS will always detect a material

EY 한영
Building a better working world

misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As part of an audit in accordance with KGAAS, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Ernst & Young Han Young

March 10, 2022

This audit report is effective as of March 10, 2022, the independent auditor's report date. Accordingly, certain material subsequent events or circumstances may have occurred during the period from the date of the independent auditor's report to the time this report is used. Such events and circumstances could significantly affect the accompanying consolidated financial statements and may result in modifications to this report.

SK Materials Co., Ltd. and its subsidiaries

Consolidated Financial Statements
for the period from December 1, 2021 (date of incorporation)
to December 31, 2021

"The accompanying consolidated financial statements, including all footnotes and disclosures, have been prepared by, and are the responsibility of, the Group."

Kyu-Won Lee
Chief Executive Officers
SK Materials Co., Ltd.

Headquarter: (Address) 63 Gaheunggongdan-ro, Yeongju-si, Gyeongsangbuk-do Korea
(Tel) (+82) 054-630-8114

SK Materials Co., Ltd. and its subsidiaries
Consolidated Statement of Financial Position
as of December 31, 2021

(in Korean won)	Notes		2021
Current assets			
Cash and cash equivalents	4,5,31	₩	19,899,841,783
Trade accounts receivables	4,6,27,31		81,039,767,048
Other current financial assets	4,8,27,31		5,149,585,193
Inventories	7,27		116,598,197,759
Other current assets	9		15,211,478,361
			237,898,870,144
Non-current assets			
Long-term financial instruments	4,5,30,31		2,000,000
Other non-current financial assets	4,8,31		2,527,547,458
Property, plant and equipment	10,19,27		780,875,713,443
Right-of-use assets	11,19		10,278,212,537
Investment property	12		16,335,278,703
Intangible assets	13,19		9,075,749,511
Deferred tax assets	25		22,922,452,988
Net defined benefit assets	17		6,746,809,694
Other non-current assets	9		1,544,088,020
			850,307,852,354
Total assets		₩	1,088,206,722,498
Liabilities			
Current liabilities			
Trade accounts payables	4,14,27,31	₩	13,484,054,886
Short-term borrowings	4,16,31		137,468,770,348
Current portion of debentures	4,16,31		99,961,199,433
Current lease liabilities	4,11,31		2,569,066,353
Other current financial liabilities	4,14,27,31		82,109,536,943
Current tax liabilities			1,627,770,707
Other current liabilities	15		1,104,244,476
			338,324,643,146
Non-current liabilities			
Long-term borrowings	4,16,31		40,000,000,000
Debentures	4,16,31		358,925,015,809
Lease liabilities	4,11,31		6,598,082,464
Other non-current liabilities	15		3,528,144,905
Deferred tax liabilities	25		141,820,039
			409,193,063,217
Total liabilities		₩	747,517,706,363
Equity			
Share capital	18	₩	7,500,000,000
Share premium			299,856,599,367
Other components of equity	18		27,328,629,158
Retained earnings	18		5,781,578,371
Equity attributable to owners of the Parent Company			340,466,806,896
Non-controlling interest			222,209,239
Total equity			340,689,016,135
Total liabilities and equity		₩	1,088,206,722,498

The accompanying notes are an integral part of the consolidated financial statements

SK Materials Co., Ltd. and its subsidiaries
Consolidated Statement of Comprehensive Income
for the period from December 1, 2021 (date or incorporation) to December 31, 2021

(in Korean won)	**Notes**		**2021**
Revenue	19,20,27	₩	65,748,035,661
Cost of sales	24,27		(45,063,566,235)
Gross profit			20,684,469,426
Selling and administrative expenses	21,24		(10,253,778,379)
Operating income			10,430,691,047
Other income	22		453,257,827
Other expenses	22		(1,707,790,289)
Finance income	23		434,462,470
Finance costs	23		(1,656,099,103)
Profit before income tax			7,954,521,952
Income tax expense	25		(2,106,136,881)
Profit for the year			5,848,385,071
Profit for the year attributable to:			
Equity holders of the Parent Company			5,858,964,864
Non-controlling interests			(10,579,793)
Other comprehensive loss			
Items that will not be reclassified to profit or loss			(81,658,117)
Remeasurements of net defined benefit liabilities			(77,386,493)
Net loss on translation of foreign operations			(4,271,624)
Items that may be subsequently reclassified to profit or loss			(325,754,736)
Net loss on translation of foreign operations			(325,754,736)
Other comprehensive loss for the year, net of tax			(407,412,853)
Total comprehensive income for the year			5,440,972,218
Total comprehensive income for the year is attributable to:			
Equity holders of the Parent Company			5,455,823,635
Non-controlling interest			(14,851,417)
Earnings per share attributable to the equity holders of the Parent Company			
Basic earnings per share	26	₩	391

The accompanying notes are an integral part of the consolidated financial statements.

SK Materials Co., Ltd. and its subsidiaries
Consolidated statements of changes in equity
for the period from December 1, 2021 (date or incorporation) to December 31, 2021

(in Korean won)		Attributable to equity holders of the Parent Company						
		Share capital	Share premium	Other components of equity	Retained earnings	Total	Non-controlling interest	Total Equity
Balance at December 1, 2021	₩	7,500,000,000	299,856,599,367	27,654,383,894	-	335,010,983,261	237,060,656	335,248,043,917
Total comprehensive income								
Profit for the year		-	-	-	5,858,964,864	5,858,964,864	(10,579,793)	5,848,385,071
Remeasurements of net defined benefit liabilities		-	-	-	(77,386,493)	(77,386,493)	-	(77,386,493)
Net loss on translation of foreign operations		-	-	(325,754,736)	-	(325,754,736)	(4,271,624)	(330,026,360)
Total comprehensive income		-	-	(325,754,736)	5,781,578,371	5,455,823,635	(14,851,417)	5,440,972,218
Balance at December 31, 2021	₩	7,500,000,000	299,856,599,367	27,328,629,158	5,781,578,371	340,466,806,896	222,209,239	340,689,016,135

The accompanying notes are an integral part of the consolidated financial statements.

SK Materials Co., Ltd. and its subsidiaries
Consolidated statements of cash flows
for the period from December 1, 2021 (date of incorporation) to December 31, 2021

(in Korean won)	Notes		2021
Cash flows from operating activities			
Cash generated from operations	28	₩	(14,180,989,895)
Interest received			62,503,703
Interest paid			(556,199,924)
Income taxes paid			(4,352,255)
Net cash used in operating activities			(14,679,038,371)
Cash flows from investing activities			
Purchase of property, plant and equipment			(19,676,492,897)
Proceeds from disposal of property, plant and equipment			15,742,421
Decrease in guarantee deposits			48,225,410
Decrease in short-term loans			89,303,000
Net cash used in investing activities			(19,523,222,066)
Cash flows from financing activities			
Increase in short-term borrowings			36,914,768,800
Repayments of short-term borrowings			(5,500,000,000)
Repayments of lease liabilities			(188,955,818)
Net cash provided by financing activities			31,225,812,982
Net decrease in cash and cash equivalents			(2,976,447,455)
Cash and cash equivalents at the beginning of the period			22,954,428,802
Effects of exchange rate changes on cash and cash equivalents			(78,139,564)
Cash and cash equivalents at the end of the period			19,899,841,783

The accompanying notes are an integral part of the consolidated financial statements.

1. General Information

(1) General Information about SK Materials Co., Ltd. (the "Company" or "Parent Co mpany")

The Parent Company has prepared the consolidated financial statements in accordance with International Financial Reporting Standards as adopted by the Republic of Korea ("KIFRS") 1110 *Consolidated Financial Statements*, and its consolidated subsidiaries include SK Materials Jiangsu Co., Ltd. and three other entities.

The Parent Company is newly established on December 1, 2021 from a split-off of the special gas division (except for the holding business division) from the former SK Materials Co., Ltd. The Parent Company is to produce and sell special gases (NF3, SiH4 and WF6) used in the manufacturing process of semiconductor, Liquid-Crystal Display, industrial gases and solar cells. The headquarters of the parent company is located in Yeong-ju, Korea.

As of December 31, 2021, the share capital of the Parent Company is ₩ 7,500 million (number of shares issued: 15,000,000), and SK Holdings Co., Ltd. holds 100% ownership of the Parent Company.

(2) Consolidated subsidiaries

Details of the consolidated subsidiaries as of December 31, 2021, are as follows:

Subsidiaries	Location	Percentage of ownership (%)	Closing Month	Main Business
SK Materials Jiangsu Co., Ltd.	China	100%	December 31	Manufacturing and sale of special gases
SK Materials Japan Co., Ltd.	Japan	95%	December 31	Sale of special gases
SK Materials Taiwan Co., Ltd.	Taiwan	100%	December 31	Sale of special gases
SK Materials (Xian) Co., Ltd.	China	100%	December 31	Trade and warehouse operation

(3) Summarized financial information of subsidiaries

The summarized financial information for consolidated subsidiaries as of and for one-month period from December 1, 2021 to December 31, 2021, is as follows:

(in millions of Korean won)

	2021					
	Assets	Liabilities	Equity	Revenue	Profit (loss) for the year	Comprehen-sive income (loss)
SK Materials Jiangsu Co., Ltd.	₩ 101,391	₩ 32,238	₩ 69,153	₩ 4,155	₩ (1)	₩ (203)
SK Materials Japan Co., Ltd.	7,814	3,367	4,447	547	(212)	(297)
SK Materials Taiwan Co., Ltd.	9,803	3,936	5,867	1,602	94	74
SK Materials (Xian) Co., Ltd.	18,120	9,997	8,123	6,006	64	41

2. Basis of Preparation and Significant Accounting Policies

(1) Basis of preparation

SK Materials Co., Ltd. and its subsidiaries (the "Group") prepares statutory financial statements in Korean in accordance with Korean International Financial Reporting Standards ("KIFRS") enacted by the Act on External Audit of Stock Companies.

The accompanying consolidated financial statements have been translated into English from Korean financial statements. In the event of any differences in interpreting the financial statements or the independent auditor's report thereon, Korean version, which is used for regulatory reporting purposes, shall prevail.

The accompanying consolidated financial statements have been prepared on a historical cost basis, except for certain non-current assets and financial instruments that are measured at fair value. Historical cost is based on the fair values of the consideration given. The accompanying consolidated financial statements were approved at the Group's Board of Directors meeting on February 9, 2022.

The new and amended standards and interpretations that are issued, but not yet effective, up to the date of issuance of the Group's consolidated financial statements are disclosed below.

KIFRS 1001 *Presentation of Financial Statements (Amendment)*

The amendments affect only the presentation of liabilities in the statement of financial position and clarify that the classification of liabilities as current or non-current should be based on rights that are in existence at the end of the reporting period and clarify that classification is unaffected by expectations about whether an entity will exercise its right to defer settlement of a liability. The amendments explain that the right exists if the borrowing arrangement is complied with at the end of the reporting period and clarify that settlement refers to the transfer of cash, equity instruments, other assets or services to the counterparty. The Group plans to apply the standard for annual reporting period beginning on or after January 1, 2023, with early application permitted.

KIFRS 1001 *Presentation of Financial Statements (Amendment)*

The amendments aim to help entities provide accounting policy disclosures that are more useful by replacing the requirement for entities to disclose their 'significant' accounting policies with a requirement to disclose their 'material' accounting policies and adding guidance on how entities apply the concept of materiality in making decisions about accounting policy disclosures. The amendments to KIFRS 1001 are applicable for annual periods beginning on or after January 1, 2023 with earlier application permitted.

KIFRS 1008 *Accounting Policies, Changes in Accounting Estimates and Errors (Amended)*

The amendments clarify the distinction between changes in accounting estimates and changes in accounting policies and the correction of errors. Also, they clarify how entities use measurement techniques and inputs to develop accounting estimates. The amendments are effective for annual reporting periods beginning on or after January 1, 2023 and apply to changes in accounting policies and changes in accounting estimates that occur on or after the start of that period. Earlier application is permitted as long as this fact is disclosed.

Amendments to KIFRS 1012 “Income Taxes” – Narrowing the scope of the initial recognition exception of deferred income taxes

The amendments narrowed the scope of the initial recognition exemption so that it no longer applies to transactions that, on initial recognition, give rise to equal taxable and deductible temporary difference, thus to resolve accounting diversity in the recognizing of deferred tax assets and liabilities.

Paragraphs 15 and 24 (initial recognition exemption of deterred income taxes) of KIFRS 1012 were amended to include an additional condition (3) where a deferred tax asset and liability shall be recognized for a temporary difference that arises on initial recognition of an asset or liability in a single transaction if that transaction give rise to equal amounts of taxable and deductible temporary differences. The amendments are effective for annual reporting periods beginning on or after January 1, 2023 with earlier adoption permitted.

KIFRS 1037 Provisions, Contingent Liabilities and Contingent Assets (Amendment)

The amendments clarify that the direct costs of fulfilling a contract include both the incremental costs of fulfilling the contract and an allocation of other costs directly related to fulfilling contracts when assessing whether the contract is onerous. The amendments should be applied for annual periods beginning on or after January 1, 2022, and earlier application is permitted.

KIFRS 1016 *Property, plant and equipment (Amendment)*

The amendments prohibit an entity from deducting from the cost of an item of property, plant and equipment any proceeds from selling items produced while the entity is preparing the asset for its intended use. Instead, the entity will recognize the proceeds from selling such items, and the costs of producing those items, in profit or loss. The amendments should be applied for annual periods beginning on or after January 1, 2022, and earlier application is permitted.

KIFRS 1103 Business Combination *(Amendment)*

The amendments update a reference of definition of assets and liabilities qualify for recognition in revised Conceptual Framework for Financial Reporting. However, the amendments add an exception for the recognition of liabilities and contingent liabilities within the scope of KIFRS 1037 Provisions, Contingent Liabilities and Contingent Assets, and KIFRS 2121 Levies. The amendments also confirm that contingent assets should not be recognized at the acquisition date. The amendments should be applied for annual periods beginning on or after January 1, 2022, and earlier application is permitted.

Annual Improvements to KIFRS 2018-2020

This improvement includes some amendments to KIFRS 1101 First-time Adoption of International Financial Reporting Standards, KIFRS 1109 Financial Instruments, KIFRS 1116 lease and KIFRS 1041 Agriculture.

The amendments to KIFRS 1116 to this annual improvement relate only to the illustrative examples and therefore did not specify the effective date of the amendments. Other amendments apply to annual reporting periods beginning on or after 1 January 2022. Earlier application is permitted.

The Group is reviewing the impact of the above-listed amendments on the consolidated financial statements.

(2) Basis of consolidation

The consolidated financial statements incorporate the financial statements of the Company and entities controlled by the Company and its subsidiaries. Control is achieved where the Group 1) has the power over the investee, 2) is exposed, or has rights, to variable returns from its involvement with the investee, and 3) has the ability to use its power to affect its returns. The Group reassesses whether or not it controls an investee if facts and circumstances indicate that there are changes to one or more of the three elements of control listed above.

When the Group has less than a majority of the voting rights of an investee, it has power over the investee when the voting rights are sufficient to give it the practical ability to direct the activities of the investee unilaterally. The Group considers all relevant facts and circumstances in assessing whether or not the Group's voting rights in an investee are sufficient to give it power, including:

- The size of the Group's holding of voting rights relative to the size and dispersion of holdings of the other vote holders;
- Potential voting rights held by the Group, other vote holders or other parties;

- Rights arising from other contractual arrangements; and
- Any additional facts and circumstances that indicate that the Group has, or does not have, the current ability to direct the relevant activities at the time that decisions need to be made, including voting patterns at previous stockholders' meetings

Income and expenses of subsidiaries acquired or disposed of during the year are included in the consolidated statement of comprehensive income from the date the Group gains control until the date when the Group ceases to control the subsidiary. Profit or loss and each component of OCI are attributed to the owners of the Company and to the non-controlling interests. Total comprehensive income of subsidiaries is attributed to the owners of the Company and to the non-controlling interests even if this results in the non-controlling interests having a deficit balance.

When necessary, adjustments are made to the financial statements of subsidiaries to bring their accounting policies into line with the Group's accounting policies.

All intragroup transactions and related assets and liabilities, income and expenses are eliminated in full on consolidation.

Changes in the Group's ownership interests in subsidiaries that do not result in the Group losing control over the subsidiaries are accounted for as equity transactions. The carrying amounts of the Group's interests and the non-controlling interests are adjusted to reflect the changes in their relative interests in the subsidiaries. Any difference between the amount by which the non-controlling interests are adjusted and the fair value of the consideration paid or received is recognized directly in equity and attributed to owners of the Company.

When the Group loses control of a subsidiary, a gain or loss on disposal is calculated as the difference between (i) the aggregate of the fair value of the consideration received and the fair value of any retained interest and (ii) the previous carrying amount of the assets (including goodwill), and liabilities of the subsidiary and any non-controlling interests. When assets of the subsidiary are carried at revalued amounts or fair values and the related cumulative gain or loss has been recognized in OCI and accumulated in equity, the amounts previously recognized in OCI and accumulated in equity are accounted for as if the Company had directly disposed of the relevant assets.

(3) Business combinations

Business combinations are accounted for using the acquisition method. The consideration transferred in a business combination is measured at fair value, which is calculated as the sum of the fair values of the assets transferred by the Group, liabilities incurred by the Group to the former owners of the acquiree and the equity interests issued by the Group in exchange for control of the acquiree. Acquisition-related costs are generally recognized in profit or loss as incurred.

Goodwill is initially measured at cost, being the excess of the aggregate of the consideration transferred and the amount recognized for non-controlling interests, and any previous interest held, over the net identifiable assets acquired and liabilities assumed. If the fair value of the net assets acquired is in excess of the aggregate consideration transferred, the Group re-assesses whether it has correctly identified all of the assets acquired and all of the liabilities assumed and reviews the procedures used to measure the amounts to be recognized at the acquisition date. If the re-assessment still results in an excess of the fair value of net assets acquired over the aggregate consideration transferred, then the gain is recognized in profit or loss.

In a business combination achieved in stages, the Group remeasures its entire previously held interests in the acquiree at fair value, and any gain or loss from the remeasurement is recognized in profit or loss or, if appropriate, in other comprehensive income. Changes in the carrying amount of previously held interests in the acquiree that are recognized in other comprehensive income is recognized in the same manner as if those interests were disposed of directly.

If the initial accounting for a business combination is incomplete by the end of the reporting period in which the combination occurs, the Group reports provisional amounts for the items for which the accounting is incomplete. Those provisional amounts are adjusted during the measurement period (see above), or additional assets or liabilities are recognized, to reflect new information obtained about facts and circumstances that existed at the acquisition date that, if known, would have affected the amounts recognized at that date.

(4) Current versus non-current classification

The Group presents assets and liabilities in the statement of financial position based on current/non-current classification. An asset is current when it is:

• Expected to be realized or intended to be sold or consumed in the normal operating cycle
• Held primarily for the purpose of trading
• Expected to be realized within twelve months after the reporting period
• Cash or cash equivalent unless restricted from being exchanged or used to settle a liability for at least twelve months after the reporting period
All other assets are classified as non-current.

A liability is current when:

• It is expected to be settled in the normal operating cycle
• It is held primarily for the purpose of trading
• It is due to be settled within twelve months after the reporting period
• There is no unconditional right to defer the settlement of the liability for at least twelve months after the reporting period
The Group classifies all other liabilities as non-current.

Deferred tax assets and liabilities are classified as non-current assets and liabilities.

(5) Foreign currencies

The individual financial statements of each entity are presented in the currency of the primary economic environment in which the entity operates (its functional currency). For the purpose of the consolidated financial statements, the results and financial position of each entity are expressed in Korean won, which is the functional currency of the entity and the presentation currency for the consolidated financial statements.

In preparing the consolidated financial statements of the individual entities, transactions in currencies other than the entity's functional currency (foreign currencies) are recognized at the rates of exchange prevailing at the dates of the transactions. At the end of each reporting period, monetary items denominated in foreign currencies are retranslated at the rates prevailing at that date. Non-monetary items carried at fair value that are denominated in foreign currencies are retranslated at the rates prevailing at the date when the fair value was determined. Non-monetary items that are measured in terms of historical cost in a foreign currency are not retranslated.

Exchange differences are recognized in profit or loss in the period in which they arise, except for:

- Exchange differences on foreign currency borrowings relating to assets under construction for future productive use, which are included in the cost of those assets when they are regarded as an adjustment to interest costs on those foreign currency borrowings,
- Exchange differences on transactions entered into in order to hedge certain foreign currency risks, and
- Exchange differences on monetary items receivable from or payable to a foreign operation for which settlement is neither planned nor likely to occur (therefore forming part of the net investment in the foreign operation), which are recognized initially in OCI and reclassified from equity to profit or loss on disposal or partial disposal of the net investment

For the purpose of presenting the consolidated financial statements, the assets and liabilities of the Group's foreign operations are expressed in Korean won using exchange rates prevailing at the end of the reporting period. Income and expense items are translated at the average exchange rates for the period, unless exchange rates fluctuated significantly during that period, in which case the exchange rates at the dates of the transactions are used. Exchange differences arising, if any, are recognized in OCI and accumulated in equity. On the disposal of a foreign operation, all of the accumulated exchange differences in respect of that operation attributable to the owners of the Group are reclassified to profit or loss.

(6) Cash and cash equivalents

Cash and cash equivalents in the statement of financial position comprise cash at banks and on hand and short-term highly liquid deposits with a maturity of three months or less, that are readily convertible to a known amount of cash and subject to an insignificant risk of changes in value.

(7) Financial assets

1) Classification

The Group classifies its financial assets in the following measurement categories:

- Financial assets measured at fair value through profit or loss (FVTPL)
- Financial assets measured at fair value through other comprehensive income (FVOCI), and
- Financial assets measured at amortized cost

The classification depends on the Group's business model for managing the financial assets and the contractual terms of the cash flows.

For financial assets measured at fair value, gains and losses will either be recorded in profit or loss or other comprehensive income. For investments in debt instruments, this will depend on the business model in which the investment is held. The Group reclassifies debt investments when, and only when its business model for managing those assets changes.

For investments in equity instruments that are not held for trading, this will depend on whether the Group has made an irrevocable election at the time of initial recognition to account for the equity investment at fair value through other comprehensive income.

2) Measurement

Financial assets are initially measured at fair value, and transaction costs that are directly attributable to the acquisition of financial assets (other than financial assets at fair value through profit or loss) are added to the fair value of the financial assets, as appropriate, on initial recognition. Transaction costs directly attributable to the acquisition of financial assets at fair value through profit or loss are recognized immediately in profit or loss.

The Group considers the hybrid contract which contains embedded derivatives as the entire hybrid contract for the purpose of assessing whether the contractual cashflows represent solely payments of principal and interest on the principal amount outstanding.

① Debt instruments

Subsequent measurement of debt instruments depends on the Group's business model for managing the asset and the cash flow characteristics of the asset. The Group classifies its debt instruments into one of the following three measurement categories:

i) Financial assets measured at amortized cost

Assets that are held for collection of contractual cash flows where those cash flows represent solely payments of principal and interest are measured at amortized cost. A gain or loss on a debt investment that is subsequently measured at amortized cost and is not part of a hedging relationship is recognized in profit or loss when the asset is derecognized or impaired. Interest income from these financial assets is included in 'finance income' using the effective interest rate method.

ii) Financial assets measured at FVOCI

Assets that are held for collection of contractual cash flows and for selling the financial assets, where the assets cash flows represent solely payments of principal and interest, are measured at fair value through other comprehensive income. Movements in the carrying amount are taken through other comprehensive income, except for the recognition of impairment loss (reversal of impairment loss), interest income and foreign exchange gains and losses which are recognized in profit or loss. When the financial asset is derecognized, the cumulative gain or loss previously recognized in other comprehensive income is reclassified from equity to profit or loss. Interest income from these financial assets is included in 'finance income' using the effective interest rate method. Foreign exchange gains and losses are presented in 'finance income or costs' and impairment losses are presented in 'finance costs'.

iii) Financial assets measured at FVTPL

Assets that do not meet the criteria for amortized cost or fair value through other comprehensive income are measured at fair value through profit or loss. A gain or loss on a debt investment that is subsequently measured at fair value through profit or loss and is not part of a hedging relationship is recognized in profit or loss and presented net in the statement of comprehensive income within 'finance income or costs' in the year in which it arises.

② Equity instruments

The Group subsequently measures all equity investments at fair value. Where the Group's management has elected to present fair value gains and losses on equity investments, which held for long-term investment or strategic purpose, in other comprehensive income, there is no subsequent reclassification of fair value gains and losses to profit or loss following the derecognition of the investment. Dividend income from such investments continue to be recognized in profit or loss as 'other non-operating income' when the right to receive payments is established.

Changes in the fair value of financial assets at fair value through profit or loss are recognized in 'finance income and expenses' in the statement of profit or loss as applicable. Impairment loss (reversal of impairment loss) on equity investments measured at fair value through other comprehensive income are not reported separately from other changes in fair value.

3) Impairment

The Group assesses on a forward looking basis the expected credit losses associated with its debt instruments carried at amortized cost and fair value through other comprehensive income. The impairment methodology applied depends on whether there has been a significant increase in credit risk.

4) Recognition and Derecognition

Regular way purchases and sales of financial assets are recognized or derecognized on trade-date, the date on which the Group commits to purchase or sell the asset. Financial assets are derecognized when the rights to receive cash flows from the financial assets have expired or have been transferred and the Group has transferred substantially all the risks and rewards of ownership.

If a transfer does not result in derecognition because the Group has retained substantially all the risks and rewards of ownership of the transferred asset, the Group continues to recognize the transferred asset in its entirety and recognizes a financial liability for the consideration received.

5) Offsetting of financial instruments

Financial assets and liabilities are offset and the net amount reported in the statements of financial position where there is a legally enforceable right to offset the recognized amounts and there is an intention to settle on a net basis or realize the assets and settle the liability simultaneously. The legally enforceable right must not be contingent on future events and must be enforceable in the normal course of business and in the event of default, insolvency or bankruptcy of the Group or the counterparty.

(8) Inventories

Inventories are measured at the lower of cost and net realizable value. Cost of inventories are measured under the gross average method. Net realizable value represents the estimated selling price for inventories, less all estimated costs of completion and costs necessary to make the sale.

The Group recorded valuation allowance on a periodic basis and recognized loss from inventory valuation as cost of sales, when significant changes with an adverse effect (an oversupply, an obsolete or decline in the price of goods) on the entity have taken place during the period.

(9) Property, plant and equipment

Land is shown at fair value based on valuations by external independent valuation specialist. Valuations are performed with sufficient regularity to ensure that the fair value of a revalued asset does not differ materially from its carrying amount.

When the carrying amounts of the assets are increased through a revaluation, the revaluation surplus is recorded in OCI and credited to the asset revaluation surplus in equity. However, if there was a revaluation deficit, which was recognized as profit or loss, of the same assets in the past, the revaluation surplus at the extent of previously recognized revaluation deficit is recognized in profit or loss. A revaluation deficit is recognized in the statement of profit or loss and other comprehensive income, except to the extent that it offsets an existing surplus on the same asset recognized in the asset revaluation reserve. Any revaluation surplus of the land, which was recorded in equity, will be replaced with retained earnings when the asset is eliminated .

Depreciation of property, plant and equipment except land is calculated on a straight-line basis over the estimated useful life of the assets, as follows:

	Useful lives
Buildings and structures	20 - 40 years
Machinery	5 - 15 years
Others	5 - 15 years

The Group reviews the depreciation method, the estimated useful lives and residual values of property, plant and equipment at the end of each annual reporting period. If expectations differ from previous estimates, the changes are accounted for as a change in an accounting estimate.

An item of property, plant and equipment is derecognized upon disposal or when no future economic benefits are expected to arise from the continued use of the asset. Any gain or loss arising on derecognition of the property (calculated as the difference between the net disposal proceeds and the carrying amount of the asset) is included in profit or loss in the period in which the property is derecognized.

(10) Government Grants

Grants from the government are recognized at their fair value where there is a reasonable assurance that the grant will be received and the Group will comply with all attached conditions. Government grants related to assets are presented in the statement of financial position either by deducting the grant in arriving at the carrying amount of the asset, and government grants related to costs are deferred and recognized in the profit or loss over the period necessary to match them with the costs that they are intended to compensate.

(11) Intangible assets

Intangible assets are measured initially at cost and, subsequently, are carried at cost, less accumulated amortization and accumulated impairment losses. The cost of intangible asset acquired in a business combination, separately from goodwill, is its fair value at the acquisition date and shall be carried at its cost less any accumulated amortization and any accumulated impairment losses.

Amortization of intangible assets other than goodwill and membership is calculated on a straight-line basis over the estimated useful lives of intangible assets from the date that they are available for use. The residual value is zero. However, intangible assets with indefinite useful lives such as Good will are not amortized as there is no foreseeable limit to the period over which the asset is expected to use.

	Useful lives
Industrial property rights	10 years
Others	5 years

The useful lives of intangible assets are assessed as either finite or indefinite. Intangible assets with finite lives are amortized over the useful economic life. The amortization period and the amortization method for an intangible asset with a finite useful life are reviewed at the end of each annual reporting period. If expectations differ from previous estimates, the changes are accounted for as a change in an accounting estimate. Intangible assets with indefinite useful lives are not amortized but are tested for impairment annually.

An item of intangible assets is derecognized upon disposal or when no future economic benefits are expected to arise from the continued use of the asset. Any gain or loss arising on derecognition of the intangible assets (calculated as the difference between the net disposal proceeds and the carrying amount of the asset) is included in profit or loss in the period in which the intangible assets is derecognized.

(12) Impairment of tangible and intangible assets other than goodwill

At the end of each reporting period, the Group reviews the carrying amounts of its tangible and intangible assets to determine whether there is any indication that those assets have suffered an impairment loss. If any such indication exists, the recoverable amount of the asset is estimated in order to determine the extent of the impairment loss. When it is not possible to estimate the recoverable amount of an individual asset, the Group estimates the recoverable amount of the CGU to which the asset belongs.

Intangible assets with indefinite useful lives and intangible assets not yet available for use are tested for impairment at least annually, and whenever there is an indication that the asset may be impaired. Recoverable amount is the higher of fair value, less costs to sell and value in use. If the recoverable amount of an asset (or a CGU) is estimated to be less than its carrying amount, the carrying amount of the asset (or the CGU) is reduced to its recoverable amount and the reduced amount is recognized in profit or loss.

Where an impairment loss subsequently reverses, the carrying amount of the asset (or a CGU) is increased to the revised estimate of its recoverable amount, so that the increased carrying amount does not exceed the carrying amount that would have been determined had no impairment loss been recognized for the asset (or the CGU) in prior years. A reversal of an impairment loss is recognized immediately in profit or loss.

(13) Investment properties

Real estate held to earn rental income or capital gains is classified as investment property. Investment properties are stated at cost, less subsequent accumulated depreciation and accumulated impairment losses.

Subsequent costs are recognized in the carrying amount of an asset or as a separate asset if it is probable that future economic benefits associated with the assets will flow into the Group and the cost of an asset can be measured reliably. Routine maintenance and repairs are expensed as incurred.

The Group does not depreciate the land. Investment properties other than land are depreciated on a straight-line method over the economic useful lives from 20 to 40 years.

The Group reviews the depreciation method, the estimated useful lives and residual values of investment properties at the end of each annual reporting period. If expectations differ from previous estimates, the changes are accounted for as a change in an accounting estimate.

(14) Borrowing costs

Borrowing costs directly attributable to the acquisition, construction or production of qualifying assets, which are assets that necessarily take a substantial period of time to get ready for their intended use or sale, are added to the cost of those assets, until such time as the assets are substantially ready for their intended use or sale.

Investment income earned on the temporary investment of specific borrowings, pending their expenditure on qualifying assets, is deducted from the borrowing costs eligible for capitalization. All other borrowing costs are recognized in profit or loss in the period in which they are incurred.

(15) Discount (premium) on bonds

Discount (premium) on bonds is presented as a direct deduction from (addition to) the nominal value of the bonds and is amortized using the effective interest rate method over the lives of the bonds.

(16) Leases

At inception of a contract, the Group assesses whether the contract is, or contains, a lease considering if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration.

1) The Group as a lessee

The Group applied a single recognition and measurement approach for all leases, except for short-term leases and leases of low-value assets. The Group recognizes a right-of-use asset representing its right to use the underlying leased asset and a lease liability representing its obligation to make lease payments.

① Right-of use assets

The Group recognizes right-of-use assets at the commencement date of the lease (i.e., the date the underlying asset is available for use). Right-of-use assets are measured at cost, less any accumulated depreciation and impairment losses, and adjusted for any re-measurement of lease liabilities. The cost of right-of-use assets includes the amount of lease liabilities recognized, initial direct costs incurred, and lease payments made at or before the commencement date less any lease incentives received.

	Useful lives
Land and buildings	1 - 50 years
Equipment	7 - 8 years
Vehicles	1 - 5 years

Unless the Group is reasonably certain to obtain ownership of the leased asset at the end of the lease term, the recognized right-of-use assets are depreciated on a straight-line basis over the shorter of its estimated useful life and the lease term. Right-of-use assets are subject to impairment.

② Lease liabilities

At the commencement date of the lease, the Group recognizes lease liabilities measured at the present value of lease payments to be made over the lease term. The lease payments include fixed payments (including in- substance fixed payments) less any lease incentives receivable, variable lease payments that depend on an index or a rate, and amounts expected to be paid under residual value guarantees. The lease payments also include the exercise price of a purchase option reasonably certain to be exercised by the Group and payments of penalties for terminating a lease, if the lease term reflects the Group exercising the option to terminate. The variable lease payments that do not depend on an index or a rate are recognized as expense in the period on which the event or condition that triggers the payment occurs.

In calculating the present value of lease payments, the Group uses the incremental borrowing rate at the lease commencement date if the interest rate implicit in the lease is not readily determinable. After the commencement date, the amount of lease liabilities is increased to reflect the accretion of interest and reduced for the lease payments made. In addition, the carrying amount of lease liabilities is remeasured if there is a modification, a change in the lease term, a change in the in-substance fixed lease payments or a change in the assessment to purchase the underlying asset.

The Group included lease liabilities as financial liabilities.

③ Short-term lease and leases of low-value assets

The Group applies the short-term lease recognition exemption to its short-term leases of land, buildings, vehicles and others (i.e., those leases that have a lease term of 12 months or less from the commencement date and do not contain a purchase option). It also applies the lease of low-value assets recognition exemption to leases of office equipment that are considered of low value (i.e., below $5,000). Lease payments on short-term leases and leases of low-value assets are recognized as expense on a straight-line basis over the lease term.

2) The Group as a lessor

Leases are classified as finance leases whenever the terms of the lease transfer substantially all the risks and rewards of ownership to the lessee. All other leases are classified as operating leases.

Amounts due from lessees under finance leases are recognized as receivables at the amount of the Group's net investment in the leases. Finance lease income is using the effective interest rate method on the Group's net investment outstanding in respect of the leases.

Rental income from operating leases is recognized on a straight-line basis over the term of the relevant lease. Initial direct costs incurred in negotiating and arranging an operating lease are added to the carrying amount of the leased asset and recognized on a straight-line basis over the lease term.

(17) Financial liabilities and equity instruments

1) Classification as debt or equity

Debt and equity instruments are classified as either financial liabilities or as equity in accordance with the substance of the contractual arrangement and the definitions of financial liability and an equity instrument.

2) Equity instruments

An equity instrument is any contract that evidences a residual interest in the assets of an entity after deducting all of its liabilities. Equity instruments issued by the Group are recognized as the proceeds are received, net of direct issue costs.

Repurchase of the Group's own equity instruments is recognized and deducted directly in equity. No gain or loss is recognized in profit or loss on the purchase, sale, issue or cancellation of the Group's own equity instruments.

3) Financial liabilities

All financial liabilities are measured subsequently at amortized cost using the effective interest method or at FVTPL. However, financial liabilities that arise when a transfer of a financial asset does not qualify for derecognition or when the continuing involvement approach applies, and financial guarantee contracts issued by the Group, are measured in accordance with the specific accounting policies set out below.

3-1) Financial liabilities at FVTPL

Financial liabilities are classified as at FVTPL when the financial liability is (i) contingent consideration of an acquirer in a business combination, (ii) held for trading or (iii) it is designated as at FVTPL.

A financial liability is classified as held for trading if:

- It has been acquired principally for the purpose of repurchasing it in the near term; or
- On initial recognition it is part of a portfolio of identified financial instruments that the Group manages together and has a recent actual pattern of short-term profit-taking; or
- It is a derivative that is not designated and effective as a hedging instrument

A financial liability other than a financial liability held for trading or contingent consideration of an acquirer in a business combination may be designated as at FVTPL upon initial recognition if:

- Such designation eliminates or significantly reduces a measurement or recognition inconsistency that would otherwise arise; or
- The financial liability forms part of a group of financial assets or financial liabilities or both, which is managed and its performance is evaluated on a fair value basis, in accordance with the Group 's documented risk management or investment strategy, and information about the grouping is provided internally on that basis; or

- It forms part of a contract containing one or more embedded derivatives, and KIFRS 1109 permits the entire combined contract to be designated as at FVTPL

Financial liabilities at FVTPL are measured at fair value, with any gains or losses arising on changes in fair value recognized in profit or loss to the extent that they are not part of a designated hedging relationship.

However, for financial liabilities that are designated as at FVTPL, the amount of change in the fair value of the financial liability that is attributable to changes in the credit risk of that liability is recognized in other comprehensive income, unless the recognition of the effects of changes in the liability's credit risk in other comprehensive income would create or enlarge an accounting mismatch in profit or loss. The remaining amount of change in the fair value of liability is recognized in profit or loss. Changes in fair value attributable to a financial liability's credit risk that are recognized in other comprehensive income are not subsequently reclassified to profit or loss; instead, they are transferred to retained earnings upon derecognition of the financial liability.

Gains or losses on financial guarantee contracts issued by the Group that are designated by the Group as at FVTPL are recognized in profit or loss.

3-2) Financial liabilities measured at amortized cost

Financial liabilities that are not (a) contingent consideration of an acquirer in a business combination, (b) held-for-trading, or (c) designated as at FVTPL, are measured subsequently at amortized cost using the effective interest method.

4) Financial guarantee contracts

A financial guarantee contract is a contract that requires the issuer to make specified payments to reimburse the holder for a loss it incurs because a specified debtor fails to make payments when due in accordance with the terms of debt instruments.

Financial guarantee contract liabilities are initially measured at their fair values and, if not designated as at FVTPL, are subsequently measured at the higher of:

- The amount of the loss allowance determined in accordance with KIFRS 1109 (see financial assets above); and
- The amount recognized initially less, where appropriate, cumulative amortization recognized in accordance with the revenue recognition policies set out above

5) Derecognition of financial liabilities

Financial liabilities are removed from the statement of financial position when it is extinguished; for example, when the obligation specified in the contract is discharged or cancelled or expired or when the terms of an existing financial liability are substantially modified. The difference between the carrying amount of a financial liability extinguished or transferred to another party and the consideration paid (including any non-cash assets transferred or liabilities assumed) is recognized in profit or loss.

(18) Retirement benefit costs

Contributions to defined contribution retirement benefit plans are recognized as an expense when employees have rendered service entitling them to the contributions.

For defined benefit retirement benefit plans, the cost of providing benefits is determined using the projected unit credit method, with actuarial valuations being carried out at the end of each reporting period. Remeasurement, comprising actuarial gains and losses, the effect of the changes to the asset ceiling (if applicable) and the return on plan assets (excluding interest), is reflected immediately in the consolidated statement of financial position with a charge or credit recognized in OCI in the period in which it occurs. Remeasurement recognized in OCI is reflected immediately in retained earnings and will not be reclassified to profit or loss. Past service cost is recognized in profit or loss in the period of a plan amendment. Net interest is calculated by applying the discount rate at the beginning of the period to the net defined benefit liability or asset. Defined benefit costs are composed of service cost (including current service cost and past service cost, as well as gains and losses on curtailments and settlements), net interest expense (income) and remeasurement.

The Group presents the service cost and net interest expense (income) components in profit or loss, and the remeasurement component in OCI. Curtailment gains and losses are accounted for as past service costs.

(19) Other long-term employee benefits

The Group provide long-term employee benefits that are entitled to employees with service period for ten years and above. The expected costs of these benefits are accrued over the period of employment using the same accounting methodology as used for defined benefit pension plans. The Group recognizes service cost, net interest on other long-term employee benefits and remeasurements as profit or loss for the year. These liabilities are valued annually by an independent qualified actuary.

(20) Provision

Provisions are recognized when the Group has a present obligation (legal or constructive) as a result of past event, it is probable that the Group will be required to settle the obligation, and a reliable estimate can be made of the amount of the obligation.

The amount recognized as a provision is the best estimate of the consideration required to settle the present obligation at the end of the reporting period, taking into account the risks and uncertainties surrounding the obligation. When a provision is measured using the cash flows estimated to settle the present obligation, its carrying amount is the present value of those cash flows (where the effect of the time value of money is material).

At the end of each reporting period, the remaining provision balance is reviewed and assessed to determine if the current best estimate is being recognized. If the existence of an obligation to transfer economic benefit is no longer probable, the related provision is reversed during the period.

(21) Revenue recognition

The Group operates manufacturing and marketing of special gases(NF_3, SiH_4, WF_6 and others). Revenue from the sale of goods is recognized when the control of goods is transferred to the customer.

(22) Income tax

Income tax expense represents the sum of the tax currently payable and deferred tax. Current and deferred tax are recognized in profit or loss, except when they relate to items that are recognized in OCI or directly in equity, in which case, the current and deferred tax are also recognized in OCI or directly in equity.

1) Current tax

The tax currently payable is based on taxable profit for the year. Taxable profit differs from profit as reported in the consolidated statement of profit or loss and comprehensive income because of items of income or expense that are taxable or deductible in other years and items that are never taxable or deductible. The Group’s liability for current tax is calculated using tax rates that have been enacted or substantively enacted by the end of the reporting period.

2) Deferred tax

Deferred tax is recognized on temporary differences between the carrying amounts of assets and liabilities in the consolidated financial statements and the corresponding tax bases used in the computation of taxable profit. Deferred tax liabilities are generally recognized for all taxable temporary differences. Deferred tax assets are generally recognized for all deductible temporary differences to the extent it is probable that taxable profits will be available against which those deductible temporary differences can be utilized. Such deferred tax assets and liabilities are not recognized if the temporary difference arises from goodwill or from the initial recognition (other than in a business combination) of other assets and liabilities in a transaction that affects neither the taxable profit nor the accounting profit.

Deferred tax liabilities are recognized for taxable temporary differences associated with investments in subsidiaries and associates and interests in joint ventures, except where the Group is able to control the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future.

Deferred tax assets arising from deductible temporary differences associated with such investments and interests are only recognized to the extent it is probable that there will be sufficient taxable profits against which the benefits of the temporary differences can be utilized and they are expected to reverse in the foreseeable future. The carrying amount of deferred tax assets is reviewed at the end of each reporting period and reduced to the extent it is no longer probable that sufficient taxable profits will be available to allow all or part of the asset to be recovered.

Deferred tax assets and liabilities are measured at the tax rates that are expected to apply in the period in which the liability is settled or the asset realized, based on tax rates (and tax laws) that have been enacted or substantively enacted by the end of the reporting period. The measurement of deferred tax liabilities and assets reflects the tax consequences that would follow from the manner in which the Group expects, at the end of the reporting period, to recover or settle the carrying amount of its assets and liabilities.

Deferred tax assets and liabilities are offset if, and only if, the Group has a legally enforceable right to set off current tax assets against current tax liabilities, and the deferred tax assets and liabilities relate to income taxes are levied by the same taxation authority on either the same taxable entity or different taxable entities that intend either to settle current tax liabilities and assets on a net basis, or to realize the assets and settle the liabilities simultaneously, in each future period in which significant amounts of deferred tax liabilities or assets are expected to be settled or recovered.

3) Current tax and deferred tax for the year

Current tax and deferred tax are recognized in profit or loss, except when they relate to items that are recognized in OCI or directly in equity, in which case the current tax and deferred tax are also recognized in OCI or directly in equity. Where current tax or deferred tax arises from the initial accounting for a business combination, the tax effect is included in the accounting for the business combination.

(23) Earnings per share

Basic earnings per share (EPS) amounts are calculated by dividing profit for the year attributable to ordinary equity holders of the Group by the weighted average number of ordinary shares outstanding during the year. Diluted EPS is determined by adjusting the profit or loss attributable to ordinary shareholders and the weighted average number of outstanding ordinary shares, adjusted for own shares held, for the effects of all dilutive potential ordinary shares including stock options.

(24) Fair value

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date, regardless of whether that price is directly observable or estimated using another valuation technique. In estimating the fair value of an asset or a liability, the Group takes into account the characteristics of the asset or liability if market participants would take those characteristics into account when pricing the asset or liability at the measurement date.

Fair value for measurement and/or disclosure purposes in these consolidated financial statements is determined on such a basis, except for share-based payment transactions that are within the scope of KIFRS 1102 Share-based Payment; leasing transactions that are within the scope of KIFRS 1116 Leases; and measurements that have some similarities to fair value, but are not fair value, such as net realizable value in KIFRS 1002 Inventories or value in use in KIFRS 1036 Impairment of Assets.

In addition, for financial reporting purposes, fair value measurements are categorized into Level 1, 2 or 3, based on the degree to which the inputs to the fair value measurements are observable and the significance of the inputs to the fair value measurement in its entirety, which are described as follows:

- Level 1: inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities that the entity can access at the measurement date;
- Level 2: inputs are inputs, other than quoted prices included within Level 1, that are observable for the asset or liability, either directly or indirectly; and
- Level 3: inputs are unobservable inputs for the asset or liability

(25) Emissions Rights and liabilities

The Group accounts for greenhouse gases emission right and the relevant liability as below pursuant to the Act on Allocation and Trading of Greenhouse Gas Emission in Korea since 2015.

① Greenhouse Gases Emission Right

Greenhouse Gases Emission Right consists of emission allowances, which are allocated from the government free of charge or purchased from the market. The cost includes any directly attributable costs incurred during the normal course of business. Emission rights held for the purpose of performing the obligation are classified as intangible asset and are initially measured at cost and after initial recognition are carried at cost less accumulated impairment losses. Emission rights held for short-swing profits are classified as current asset and are measured at fair value with any changes in fair value recognized as profit or loss in the respective reporting period. The Group derecognizes an emission right asset when the emission allowance is unusable, disposed or submitted to government in which the future economic benefits are no longer expected to be probable.

② Emission liability

Emission liability is a present obligation of submitting emission rights to the government with regard to emission of greenhouse gas. Emission liability is recognized when it is probable that outflows of resources will be required to settle the obligation and the costs required to perform the obligation are reliably estimable. Emission liability is an amount of estimated obligations for emission rights to be submitted to the government for the performing period. The emission liability is measured based on the expected quantity of emission for the performing period in excess of emission allowance in possession and the unit price for such emission rights in the market at the end of the reporting period. The Group derecognizes emission liability when it submits emission rights to the government.

3. Significant accounting judgments, estimates and assumptions

When preparing the consolidated financial statements, management is required to make judgments, estimates and assumptions that affect the reported amount of assets, liabilities, revenues and expenses. Actual results may be different from those estimates.

The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognized in the period in which the estimate is revised if the revision affects only that period or in the period of the revision and future periods if the revision affects both current and future periods.

The following are the key assumptions concerning the future, and other key sources of estimation uncertainty at the end of the reporting period, that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year.

(1) Income taxes

The Group's taxable income generated from these operations are subject to income taxes based on tax laws and interpretations of tax authorities in numerous jurisdictions. There are many transactions and calculations for which the ultimate tax determination is uncertain.

If certain portion of the taxable income is not used for investments or increase in wages or dividends, the Group is liable to pay additional income tax calculated based on the tax laws. Accordingly, the measurement of current and deferred income tax is affected by the tax effects from the new tax system. As the Group's income tax is dependent on the investments, increase in wages and dividends, there is an uncertainty measuring the final tax effects.

(2) Revaluation of land

The Group measures land at fair value, and changes in the fair value are reflected in other comprehensive income. As of December 31, 2021, land has been reevaluated by former SK Materials Co., Ltd. using an independent evaluation agency on March 31, 2021, which was the revaluation base date. The evaluation was performed according to the amount evaluated based on the recent market transaction in accordance with the terms of transactions with independent third parties while applying the published land price standard method which calculates the price according to the current status of the target land based on the standard published land price. There is no significant difference in the revaluation amount of the land between the appraisal amount on December 1, 2021 and the revaluation base date.

(3) Measurement and useful lives of property, plant and equipment or intangible assets

If the Group acquires property, plant and equipment or intangible assets from business combination, it is required to estimate the fair value of these assets at the acquisition date. For estimating the useful lives of tangible and intangible assets, significant management judgment is required.

(4) Impairment of financial assets

The provision for impairment for financial assets are based on assumptions about risk of default and expected loss rates. The Group uses judgement in making these assumptions and selecting the inputs to the impairment calculation based on the Group's past history, existing market conditions as well as forward looking estimates at the end of each reporting period.

(5) Defined benefit plan

The Group's defined benefit liabilities is determined based on the actuarial valuation carried out at the end of each annual reporting period. Actuarial assumptions are the Group's best estimates of the variables in determining the cost of providing post-retirement benefits, such as discount rates, rates of expected future salary increases and mortality rates. Significant estimation uncertainty is likely to persist in making such assumptions due to the long-term nature of post-retirement benefit plan.

(6) COVID-19 related matters

To prevent the spread of COVID-19, various prevention and control measures, including restrictions on traveling, are being implemented worldwide, and as a result, the global economy is being affected extensively. In particular, the Group is manufacturing and selling special gases (NF3, SiH4, WF6) used in semiconductor, LCD, and solar cell manufacturing processes as its major businesses, and is exposed to uncertainties in the market due to COVID-19. This may negatively affect productivity, decrease or delay in sales, collection of existing bonds, discount rates and indicators used in various estimates, adversely affecting the consolidated financial position and consolidated financial performance of the Group. The Group has prepared consolidated financial statements by reasonably estimating the impact of COVID-19 on the Group. However, significant uncertainties exist in the estimation of the impact of COVID-19 on the Group.

4. Financial Instruments by Category

(1) Financial assets

Categorizations of financial assets as of December 31, 2021, are as follows:

(in thousands of Korean won)	2021		
	Financial assets at FVOCI	**Financial assets at amortized cost**	**Total**
Current assets:			
Cash and cash equivalents	₩ -	₩ 19,899,842	₩ 19,899,842
Trade receivables	28,712,183	52,327,584	81,039,767
Short-term loans	-	536,359	536,359
Other receivables	-	3,820,019	3,820,019
Accrued income	-	1,024	1,024
Guarantee deposits	-	792,183	792,183
	28,712,183	77,377,011	106,089,194
Non-current assets:			
Long-term financial instruments	₩ -	₩ 2,000	₩ 2,000
Long-term loans	-	1,871,101	1,871,101
Long-term guarantee deposits	-	656,446	656,446
	-	2,529,547	2,529,547
Total	₩ 28,712,183	₩ 79,906,558	₩ 108,618,741

(2) Financial liabilities

Categorizations of financial liabilities as of December 31, 2021, are as follows:

(in thousands of Korean won)	2021	
	Financial liabilities at amortized cost	**Total**
Current liabilities:		
Trade accounts payables	₩ 13,484,055	₩ 13,484,055
Short-term borrowings	137,468,770	137,468,770
Current portion of debentures	99,961,199	99,961,199
Lease liabilities	2,569,066	2,569,066
Non-trade account payables	45,375,653	45,375,653
Accrued expenses	36,733,884	36,733,884
	335,592,627	335,592,627
Non-current liabilities:		
Long-term borrowings	40,000,000	40,000,000
Debentures	358,925,016	358,925,016
Long-term lease liabilities	6,598,082	6,598,082
	405,523,098	405,523,098
Total	₩ 741,115,725	₩ 741,115,725

(3) Net Gains or Losses by Category of Financial Instruments

Net gains or losses on each category of financial instruments for the period from December 1, 2021 to December 31, 2021, are as follows:

(in thousands of Korean won)	For the period from December 1, 2021 to December 31, 2021				
	Financial assets			Financial liabilities	
	Financial assets at FVTPL	Financial assets at FVOCI	Financial assets at amortized cost	Financial liabilities at amortized cost	Total
Interest income	₩ -	₩ -	₩ 134,368	₩ -	₩ 134,368
Interest expense	-	-	-	(1,002,109)	(1,002,109)
Gains and losses related foreign currency	-	-	(450,863)	184,911	(265,952)
Loss on disposal of trade account receivables	-	(13,340)	-	-	(13,340)
Others	(74,604)	-	-	-	(74,604)
Total	₩ (74,604)	₩ (13,340)	₩ (316,495)	₩ (817,198)	₩ (1,221,637)

(4) Fair value hierarchy

All assets and liabilities for which fair value is measured or disclosed in the financial statements are categorized within the fair value hierarchy, described as follows, based on the lowest level input that is significant to the fair value measurement as a whole:

	Significance of the inputs
Level 1	Quoted (unadjusted) market prices in active markets for identical assets or liabilities
Level 2	Valuation techniques for which the lowest-level input that is significant to the fair value measurement is directly or indirectly observable
Level 3	Valuation techniques for which the lowest-level input that is significant to the fair value measurement is unobservable

Fair value hierarchy classifications of the financial instruments that are measured at fair value as of December 31, 2021, are as follows:

(in thousands of Korean won)	2021			
	Level 1	**Level 2**	**Level 3**	**Total**
Financial assets:				
Financial assets at FVOCI (trade accounts receivables)	₩ -	₩ -	₩ 28,712,183	₩ 28,712,183
Total	₩ -	₩ -	₩ 28,712,183	₩ 28,712,183

The Group determines whether there has been a transfer between levels in the hierarchy of assets and liabilities that are recognized at fair value through re-assessing the categorization (based on the lowest level input that is significant to the fair value measurement as a whole) at the end of each reporting period. There has been no transfer between levels for one-month period ended December 31, 2021.

(5) Description of valuation techniques used and key inputs to valuation of financial instruments

Financial instruments using fair value measurements classified as Level 3 as of December 31, 2021, and the valuation techniques and inputs used in fair value of these financial instruments are as follows:

① Debt securities
The fair value of debt securities is measured by discounting the future cash flows of debt securities by applying the market interest rate applied to companies with similar creditworthiness as the issuer of debt securities.

② Valuation techniques and inputs used in the recurring fair value measurements categorized within Level 3 of the fair value hierarchy as of December 31, 2021 are as follows:

(in thousands of Korean won)	**Fair value**	**Level**	**Valuation techniques**	**Inputs**	**Range of inputs**
Fair value through other comprehensive income					
Trade accounts receivables	28,712,183	3	Present value technique	Credit risk adjusted discount rate	-

There is no change in valuation techniques used to measure the fair value of financial instruments classified as Level 1, Level 2 and Level 3.

5. Cash and Cash Equivalents and Long-term and Short-term Financial Instruments

(1) Details of cash and cash equivalents

Cash and cash equivalents as of December 31, 2021, consist of:

(in thousands of Korean won)		**2021**
Cash on hand	₩	2,115
Demand deposit		19,897,727
Total	₩	19,899,842

(2) Details of long-term financial instruments

Details of long-term financial instruments as of December 31, 2021, are as follows:

(in thousands of Korean won)		**2021**	**Remark**
Deposits for checking accounts	₩	2,000	Restriction

6. Trade accounts receivables

(1) Details of trade accounts receivables as of December 31, 2021, are as follows:

(in thousands of Korean won)		**2021**
Trade accounts receivables	₩	81,039,767
Loss allowances		-
Total	₩	81,039,767

(2) As of December 31, 2021, the outstanding balance of derecognized trade accounts receivables is amounting to ₩ 13,732 million. As of December 31, 2021, the Group derecognized the transferred trade accounts receivables from consolidated financial statements as the risk and rewards were substantially transferred to Hana Bank and two other financial institutions.

(3) When the Group discounts a particular class of trade accounts receivables its portfolio is classified as a sell and collect business model, and the trade accounts receivables portfolio held for collecting the contractual cash flows without discounts is classified as a business model for collecting the contractual cash flows. Trade accounts receivables classified as sell and collect business model are measured at fair value, and gains and losses on valuation are recognized in other comprehensive income.

As of December 31, 2021, the amount which is classified as sell and collect business model and recognized as financial assets at fair value through other comprehensive income is ₩ 28,712 million. The amount which is classified as a business model for collecting the contractual cash flows and recognized at amortized cost is ₩ 52,328 million.

7. Inventories

Details of Inventories as of December 31, 2021, are as follows:

(in thousands of Korean won)	2021		
	Acquisition cost	**Inventory valuation allowance**	**Carrying amount**
Merchandise	₩ 4,751,866	₩ -	₩ 4,751,866
Finished goods	58,544,105	-	58,544,105
Raw materials	23,690,205	-	23,690,205
Work in process	9,128,512	-	9,128,512
Supplies	18,020,117	-	18,020,117
Materials-in-transit	2,463,393	-	2,463,393
Total	₩ 116,598,198	₩ -	₩ 116,598,198

The cost of inventories recognized as an expense and included in 'cost of sales' for one-month period from December 1, 2021 to December 31, 2021 amounts to ₩ 19,745 million. In addition, there was no inventory valuation losses recognized in the cost of sales for one-month period from December 1, 2021 to December 31, 2021.

8. Other Financial Assets

Details of other financial assets as of December 31, 2021, are as follows:

(in thousands of Korean won)		2021
Other current financial assets		
Short-term loans	₩	536,359
Non-trade accounts receivables		3,820,019
Accrued income		1,024
Guarantee deposits		792,183
	₩	5,149,585
Other non-current financial assets		
Long-term loans	₩	1,871,101
Long-term Leasehold deposits		656,446
	₩	2,527,547
Total	₩	7,677,132

9. Other Assets

Details of other assets as of December 31, 2021, are as follows:

(in thousands of Korean won)		2021
Other current assets		
Advance payments	₩	4,615,434
Prepaid expenses		1,978,582
Value added tax receivables		8,617,462
	₩	15,211,478
Other non-current assets		
Long-term Prepaid expenses	₩	1,544,088
	₩	1,544,088
Total	₩	16,755,566

10. Property, Plant and Equipment

(1) Details of property, plant and equipment as of December 31, 2021, are as follows:

(in thousands of Korean won)	2021					
		Acquisition Cost		Accumulated depreciation[1]		Net book value
Land	₩	121,940,981	₩	-	₩	121,940,981
Buildings and structures		221,594,300		(64,433,340)		157,160,960
Machinery		952,902,894		(655,062,137)		297,840,757
Others		206,783,430		(109,235,551)		97,547,879
Construction in progress		106,385,136		-		106,385,136
Total	₩	1,609,606,741	₩	(828,731,028)	₩	780,875,713

[1] Accumulated depreciation, Accumulated impairment losses and government grants are included.

(2) Changes in property, plant and equipment for one-month period from December 1, 2021 to December 31, 2021, are as follows:

(in thousands of Korean won)	For one-month period from December 1, 2021 to December 31, 2021					
	Land[1]	Buildings and structures	Machinery	Others	Construction in progress	Total
Beginning net book value	₩ 80,671,505	₩ 145,525,685	₩ 296,773,831	₩ 95,322,502	₩ 156,535,731	₩ 774,829,254
Acquisition	-	44,906	-	29,944	18,448,959	18,523,809
Disposal	-	(28,324)	(7,903)	(1,637)	(15,742)	(53,606)
Depreciation	-	(629,718)	(5,082,165)	(1,134,680)	-	(6,846,563)
Transfer from construction in progress	41,283,492	12,361,945	6,249,013	3,328,526	(63,222,976)	-
Transfer to other accounts[2]	-	-	-	-	(5,336,849)	(5,336,849)
Others[3]	(14,016)	(113,534)	(92,019)	3,224	(23,987)	(240,332)
Ending net book value	₩ 121,940,981	₩ 157,160,960	₩ 297,840,757	₩ 97,547,879	₩ 106,385,136	₩ 780,875,713

[1] Land was revalued on March 31, 2021 by a pre-split former SK Materials Co., Ltd. using an external independent valuation specialist. The revaluation was conducted based on 'Standard Public Land Price Evaluation Method' and 'sales comparison approach' according to the conditions of transactions with an independent third party. There is no significant difference in the revaluation amount of the land from the appraisal amount on December 1, 2021, the base date for the split-off. Revaluation surplus, net of deferred tax accounted as ₩ 27,790 million, was recorded to other comprehensive income and is shown in other components of equity. The historical cost of land amounts to ₩ 85,279 million as of December 31, 2021.

[2] ₩ 120 million was replaced by intangible assets and ₩ 5,216 million was replaced by investment properties are included.

[3] Others include net foreign exchange differences and others.

As of December 31, 2021, certain property, plant and equipment of the Group are provided as collateral for the borrowings and others (Note 30).

(3) Line items including depreciation expenses for one-month period from December 1, 2021 to December 31, 2021, are as follows:

(in thousands of Korean won)	For one-month period from December 1, 2021 to December 31, 2021
Cost of sales	₩ 6,430,056
Research and development expenses	98,809
Selling and administrative expenses	317,698
Total	₩ 6,846,563

(4) As of December 31, 2021, the fair value of land is classified as Level 3. Valuation techniques and inputs used in the recurring fair value measurements of land as of December 31, 2021, are as follows:

(in thousands of Korean won)		**Fair value**	**Level**	**Valuation techniques**	**Inputs**
Land	₩	121,940,981	3	Standard public land price evaluation method	Officially assessed land price, Time adjustment, Regional factors, Individual factors, Other factors and others

11. Right-of-use Assets and Lease Liabilities

(1) Details of right-of-use assets as of December 31, 2021, are as follows:

(in thousands of Korean won)	2021		
	Acquisition Cost	**Accumulated depreciation**	**Net book value**
Properties	₩ 4,508,642	₩ (630,691)	₩ 3,877,951
Machinery	9,406,663	(3,673,136)	5,733,527
Vehicle	1,091,327	(424,592)	666,735
Total	₩ 15,006,632	₩ (4,728,419)	₩ 10,278,213

(2) Changes in right-of-use assets for one-month period from December 1, 2021 to December 31, 2021, are as follows:

(in thousands of Korean won)	For one-month period from December 1, 2021 to December 31, 2021				
	Beginning	**Increase**	**Depreciation**	**Other[1]**	**Ending**
Properties	₩ 4,311,474	₩ 1,361,541	₩ (89,382)	₩ (1,705,682)	₩ 3,877,951
Machinery	5,837,457	-	(103,930)	-	5,733,527
Vehicle	894,968	53,406	(62,563)	(219,076)	666,735
Total	₩ 11,043,899	₩ 1,414,947	₩ (255,875)	₩ (1,924,758)	₩ 10,278,213

[1] Consists of mid termination and net foreign exchange differences.

(3) The carrying amounts of lease liabilities as of December 31, 2021, are as follows:

(in thousands of Korean won)	**2021**
Current lease liabilities	₩ 2,569,066
Non-current lease liabilities	6,598,082
Total	₩ 9,167,148

(4) Changes in lease liabilities for one-month period from December 1, 2021 to December 31, 2021, are as follows:

(in thousands of Korean won)		**For one-month period from December 1, 2021 to December 31, 2021**
Beginning	₩	9,777,023
Increase		1,414,947
Interest expenses		19,159
Payments		(208,115)
Other[1]		(1,835,866)
Ending	₩	9,167,148

[1] Consists of mid termination and net foreign exchange differences.

The total cash outflow for leases in 2021 was ₩ 347 million.

(5) The consolidated statement of comprehensive income shows the following amounts relating to leases:

(in thousands of Korean won)		**2021**
Depreciation of right-of-use assets		
Properties	₩	89,382
Equipment		103,930
Vehicles		62,563
Total	₩	255,875
Expense relating to short-term leases	₩	69,354
Expense relating to leases of low-value assets that are not short-term leases		69,660
Interest expense		19,159

12.Investment properties

(1) Changes in investment properties for one-month period from December 1, 2021 to December 31, 2021, are as follows:

(in thousands of Korean won)

	Beginning	Transfer to other accounts[1]	Depreciation	Ending
Land	₩ -	₩ 2,435,707	₩ -	₩ 2,435,707
Buildings	11,148,105	2,780,742	(29,275)	13,899,572
Total	₩ 11,148,105	₩ 5,216,449	₩ (29,275)	₩ 16,335,279

[1] ₩ 5,216 million was replaced from property, plant and equipment.

(2) The income and expense recognized related to the investment properties for one-month period from December 1, 2021 to December 31, 2021 are as follows:

(in thousands of Korean won)	For one-month period from December 1, 2021 to December 31, 2021
Rental income	₩ 30,350
Depreciation expense of investment properties	(29,275)
Total	₩ 1,075

(3) As of December 31, 2021, the fair value of investment properties is ₩ 17,455 million.

13. Intangible Assets

(1) Details of intangible assets as of December 31, 2021, are as follows:

(in thousands of Korean won)	2021					
		Acquisition Cost		Accumulated amortization[1]		Net book value
Membership	₩	619,721	₩	(317,721)	₩	302,000
Software		20,371,175		(11,709,357)		8,661,818
Others		3,177,225		(3,065,294)		111,931
Total	₩	24,168,121	₩	(15,092,372)	₩	9,075,749

[1] Accumulated depreciation and Accumulated impairment losses are included.

(2) Changes in intangible assets for one-month period from December 1, 2021 to December 31, 2021, are as follows:

(in thousands of Korean won)	For one-month period from December 1, 2021 to December 31, 2021							
		Membership[1]		Software		Other		Total
Beginning	₩	302,000	₩	8,812,055	₩	113,728	₩	9,227,783
Transfer to other accounts[2]		-		120,400		-		120,400
Amortization		-		(262,962)		(1,797)		(264,759)
Other[3]		-		(7,675)		-		(7,675)
Ending	₩	302,000	₩	8,661,818	₩	111,931	₩	9,075,749

[1] The Group classifies membership as intangible assets with indefinite useful lives and does not amortize.
[2] ₩ 120 million replaced from property, plant and equipment is included.
[3] Other includes net foreign exchange differences and others.

(3) Line items including amortization expenses for one-month period from December 1, 2021 to December 31, 2021, are as follows:

(in thousands of Korean won)	For one-month period from December 1, 2021 to December 31, 2021	
Cost of sales	₩	40,371
Research and development expenses		10,884
Selling and administrative expenses		213,504
Total	₩	264,759

(4) The Group recognized total research and development costs of ₩ 344 million as expenses.

14. Trade Accounts Payables and Other Financial Liabilities

Details of trade accounts payables and other financial liabilities as of December 31, 2021, are as follows:

(in thousands of Korean won)		2021
Trade accounts payables	₩	13,484,055
Other current financial liabilities:		
Non-trade accounts payables		45,375,653
Accrued expenses		36,733,884
	₩	82,109,537
Total	₩	95,593,592

15. Other Liabilities

Details of other liabilities as of December 31, 2021, are as follows:

(in thousands of Korean won)		2021
Current:		
Withholdings	₩	694,023
Advances		72,734
Others		337,487
	₩	1,104,244
Non-current:		
Long-term payables	₩	3,528,145
	₩	3,528,145
Total	₩	4,632,389

16. Borrowings and Debentures

(1) Details of borrowings and debentures as of December 31, 2021, are as follows:

(in thousands of Korean won)	2021			
		Current		Non-current
Short-term borrowings	₩	137,468,770	₩	-
long-term borrowings and Debentures:				
Long-term borrowings	₩	-	₩	40,000,000
Debentures		99,961,199		358,925,016
	₩	99,961,199	₩	398,925,016
Total	₩	237,429,969	₩	398,925,016

(2) Short-term borrowings

Details of short-term borrowings as of December 31, 2021, are as follows:

(in thousands of Korean won) Classification	Lender	Latest maturity date	Annual interest rate (%) December 31, 2021	2021
Loans for trade finance	Industrial Bank of Korea	Jan. 20, 2022	2.26	₩ 4,500,000
Export growth fund	The Export-Import Bank of Korea	Aug. 30, 2022	1.53	30,000,000
General loans	Sumitomo Mitsui Bank	Feb. 03, 2022	1.89	10,000,000
	Sumitomo Mitsui Bank	Jan. 26, 2022	1.87	6,000,000
	Sumitomo Mitsui Bank	Jan. 26, 2022	1.88	10,000,000
	Korea Development Bank[1]	Feb. 03, 2022	2.55	30,000,000
	Korea Development Bank[1]	Jan. 26, 2022	1.99	10,000,000
	Korea Development Bank[1]	Jan. 13, 2022	1.99	10,000,000
	Korea Development Bank (Guangzhou branch of China)	Apr. 22, 2022	1.01	4,750,152
	Korea Development Bank (Guangzhou branch of China)	Jul. 22, 2022	1.10	11,875,378
	Shinhan Bank(Osaka branch of Japan)	Mar. 25, 2022	1.30	1,030,240
	MUFG Bank (Wuxi branch of China)	Mar. 07, 2022	3.60	9,313,000
Total				₩ 137,468,770

[1] Certain property, plant and equipment (land, buildings and machinery) of the Group are pledged as collaterals for borrowings (Note 30).

(3) Long-term borrowings

Details of long-term borrowings as of December 31, 2021, are as follows:

(in thousands of Korean won) Classification	Lender	Latest maturity date	Annual interest rate (%) December 31, 2021	2021
Facility loans	China Everbright Bank	Jun. 24, 2024	2.47	₩ 20,000,000
Export growth fund	The Export-Import Bank of Korea	Nov. 03, 2024	1.99	20,000,000
				₩ 40,000,000
	Less: Current portion of long-term borrowings			-
	Total			₩ 40,000,000

(4) Debentures

Details of debentures as of December 31, 2021, are as follows:

(in thousands of Korean won) Classification	Latest maturity date	Annual interest rate (%) December 31, 2021		2021
1st non-guarantee public bonds	Mar. 02, 2023	3.12	₩	30,000,000
2nd non-guarantee public bonds	Apr. 26, 2022	2.00		100,000,000
3rd non-guarantee public bonds	Jul. 03, 2025	1.93		30,000,000
4th – 1st non-guarantee public bonds	Feb. 23, 2024	1.44		230,000,000
4th – 2nd non-guarantee public bonds	Feb. 23, 2026	1.75		70,000,000
			₩	460,000,000
Less: Present value discounts				(1,113,785)
Less: Current portion of debentures				(99,961,199)
Total			₩	358,925,016

17. Retirement benefit obligations

The Group operates defined benefit pension plans. The majority of the plans are final salary pension plans, which provide benefit to employees in the form of a guaranteed level of pension payable for life. The level of benefits provided depends on employees' length of service and their salary in the final years leading up to retirement. The majority of benefit payments are from trustee administered funds; however, there are also a number of unfunded plans. Plan assets held in trusts are governed by local regulations and practice in each country.

(1) Components of the retirement benefit obligations

Line items in the statement of financial position arising from the obligations of the Group in relation to the defined benefit retirement benefit plan as of December 31, 2021, are as follows:

(in thousands of Korean won)		2021
Present value of funded defined benefit obligations	₩	32,263,355
Fair value of plan assets		(39,010,165)
Net defined benefit liabilities(assets)	₩	(6,746,810)

(2) Changes in net defined benefit liabilities(assets) for one-month period from December 1, 2021 to December 31, 2021, are as follows:

(in thousands of Korean won)	For one-month period from December 1, 2021 to December 31, 2021		
	Present Value of Defined benefit obligations	**Plan assets**	**Total**
Beginning	₩ 32,697,934	₩ (28,071,214)	₩ 4,626,720
Post-employment benefits:			
Current service cost	368,422	-	368,422
Interest expense(income)	80,187	(68,855)	11,332
	₩ 448,609	₩ (68,855)	₩ 379,754
Remeasurements:			
Income from plan assets (Excluding amounts included in the above interest)	-	102,704	102,704
Actuarial gains and losses from changes in financial assumptions	(248,086)	-	(248,086)
Experience adjustments and others	247,475	-	247,475
	₩ (611)	₩ 102,704	₩ 102,093
Contributions	-	(11,000,000)	(11,000,000)
Benefits paid	(210,252)	27,200	(183,052)
Others	(672,325)	-	(672,325)
Ending	₩ 32,263,355	₩ (39,010,165)	₩ (6,746,810)

(3) Details of fair value of plan assets

Details of plan assets as of December 31, 2021, are as follows:

(in thousands of Korean won)	**2021**
Cash and cash equivalents	₩ 16,316
Time deposit	13,654,388
Other financial assets	25,339,461
Total	₩ 39,010,165

(4) Principal assumptions on actuarial valuation as of December 31, 2021, are as follows:

	2021
Discount rate	3.06%
Salary growth rate	3.00%

(5) The sensitivity of the defined benefit obligation to changes in the principal assumptions is as follows:

(in thousands of Korean won)	Effect on defined benefit obligation		
	Changes in principal assumption	**Increase in principal assumption**	**Decrease in principal assumption**
Discount rate	1.0%	(3,132,650)	3,731,834
Salary growth rate	1.0%	3,697,060	(3,163,681)

The above sensitivity analysis are conducted by holding all other assumptions constant. The sensitivity of the defined benefit obligation to changes in principal actuarial assumptions is calculated using the projected unit credit method, the same method applied when calculating the defined benefit obligations recognized on the statement of financial position.

The weighted average duration of the defined benefit obligation is 12.176 years.

(6) Defined Contribution Plan

The expense recognized for one-month period from December 1, 2021 to December 31, 2021 in relation to defined contribution plan was ₩ 27 million.

18. Equity

(1) Issued capital

Details of issued capital as of December 31, 2021 are as follows:

(in thousands of Korean won)		2021
1. Number of shares authorized for issue		50,000,000 shares
2. Per share	₩	500
3. Number of shares issued		
Ordinary share		15,000,000 shares
4. Issued capital		
Ordinary share	₩	7,500,000

(2) Other components of equity

Details of other components of equity as of December 31, 2021, are as follows:

(in thousands of Korean won)		2021
Gain on revaluation of land	₩	27,789,760
Gain on translation of foreign operations		(325,755)
Other components of equity		(135,376)
Total	₩	27,328,629

(3) Retained earnings

Details of retained earnings as of December 31, 2021, are as follows:

(in thousands of Korean won)		2021
Retained earnings before appropriation	₩	5,781,578

19. Operating Segment Information

(1) The Group operates a single operating segment and provides financial information to the Chief Executive Officer at the corporate level.

Segment	Type of goods and services
Special gases	Manufacturing and marketing of special gases (NF3, SiH4 and WF6) and others

(2) Sales by geographic region for one-month period from December 1, 2021 to December 31, 2021, are as follows:

	For one-month period from December 1, 2021 to December 31, 2021							
(in thousands of Korean won)		Korea		Asia		Others		Total
Revenue	₩	44,637,327	₩	21,021,821	₩	88,888	₩	65,748,036
Property, plant and equipment		700,761,989		80,113,724		-		780,875,713
Right-of-use assets		8,343,514		1,934,699		-		10,278,213
Intangible assets		7,397,562		1,678,188		-		9,075,750

20. Revenue from Contracts with Customers

(1) Revenue of the Group is entirely from contracts with customers and is recognized at a point in time.

(2) Details of external customers, who contribute more than 10% of the Group's revenue for one-month period from December 1, 2021 to December 31, 2021, are as follows:

(in thousands of Korean won)		For one-month period from December 1, 2021 to December 31, 2021
A company	₩	25,279,476
B company		15,545,673
Total	₩	40,825,149

21. Selling and Administrative Expenses

Details of selling and administrative expenses for one-month period from December 1, 2021 to December 31, 2021, are as follows:

(in thousands of Korean won)		For one-month period from December 1, 2021 to December 31, 2021
Salaries	₩	6,700,291
Retirement benefit expense		28,499
Welfare		198,916
Travel and transportation expenses		29,656
Rent		64,295
Entertainment expenses		16,467
Advertising expenses		34,718
Books and printing		2,770
Commission expenses		876,645
Freight expenses		329,823
Sales expenses		437,664
Taxes and dues		78,817
Office expenses		72,265
Depreciation		317,698
Depreciation of right-of-use assets		124,785
Amortization of intangible assets		213,504
Research and development		343,539
Others		383,427
Total	₩	10,253,779

22. Other non-operating income and expenses

(1) Details of other non-operating income for one-month period from December 1, 2021 to December 31, 2021, are as follows:

(in thousands of Korean won)		For one-month period from December 1, 2021 to December 31, 2021
Commission income	₩	178,477
Rental income		2,928
Miscellaneous income		271,853
Total	₩	453,258

(2) Details of other non-operating expenses for one-month period from December 1, 2021 to December 31, 2021, are as follows:

(in thousands of Korean won)		For one-month period from December 1, 2021 to December 31, 2021
Donations	₩	1,550,931
Loss on disposal of property, plant and equipment		37,864
Miscellaneous loss		118,995
Total	₩	1,707,790

23. Finance Income and Costs

Details of finance income and costs for one-month period from December 1, 2021 to December 31, 2021, are as follows:

(in thousands of Korean won)		For one-month period from December 1, 2021 to December 31, 2021
Finance income		
Interest income	₩	134,368
Gain on foreign currency transactions		228,491
Gain on foreign currency translations		71,603
Total	₩	434,462
Finance costs		
Interest expense	₩	1,002,109
Loss on foreign currency transactions		311,900
Loss on foreign currency translations		254,146
Loss on disposal of trade accounts receivables		13,340
Others		74,604
Total	₩	1,656,099

24. Breakdown of Expenses by Nature

Details of classification based on nature of expenses for one-month period from December 1, 2021 to December 31, 2021, are as follows:

(in thousands of Korean won)		For one-month period from December 1, 2021 to December 31, 2021
Changes in inventories	₩	(2,513,943)
Raw materials and merchandise purchased		22,258,932
Salaries		11,460,083
Welfare		561,375
Retirement benefit expense		328,478
Depreciation		6,846,563
Depreciation of right-of-use assets		255,875
Amortization of intangible assets		264,759
Depreciation of investment properties		29,275
Gas expenses		2,146,683
Utility expenses		5,905,941
Repairs and maintenance		1,501,329
Supplies		1,871,898
Advertising expenses		34,718
Freight expenses		346,730
Commission expenses		1,759,399
Rent		139,014
Sales expenses		437,664
Other expenses		1,682,572
Total	₩	55,317,345

25. Tax Expense and Deferred Tax

(1) Income tax expense for one-month period from December 1, 2021 to December 31, 2021, consists of:

(in thousands of Korean won)		For one-month period from December 1, 2021 to December 31, 2021
Current tax:		
Current tax on profit for the year	₩	1,614,535
Deferred tax:		
Changes in temporary differences		466,895
Deferred tax recognized directly to equity		24,707
Income tax expense	₩	2,106,137

(2) Reconciliation between actual income tax expense and amount computed by applying the statutory tax rate to profit before income tax for one-month period from December 1, 2021 to December 31, 2021, is as follows:

(in thousands of Korean won)		For one-month period from December 1, 2021 to December 31, 2021
Profit before income tax	₩	7,954,522
Income tax expense computed at statutory tax rate		2,124,811
Adjustments:		
Non-deductible expenses		8,433
Others		(27,107)
Income tax expense	₩	2,106,137

The average effective tax rate of the Group as of December 31, 2021 was 26.48%.

(3) The tax effect relating to components of other comprehensive income for one-month period from December 1, 2021 to December 31, 2021, is as follows:

(in thousands of Korean won)	For one-month period from December 1, 2021 to December 31, 2021					
	Before tax		Tax effect		After tax	
Remeasurements of net defined benefit liabilities	₩	(102,093)	₩	24,707	₩	(77,386)
Total	₩	(102,093)	₩	24,707	₩	(77,386)

(4) The analysis of deferred tax assets and liabilities as of December 31, 2021, is as follows:

(in thousands of Korean won)		**2021**
Deferred tax assets		
Deferred tax assets to be recovered after more than 12 months	₩	25,385,415
Deferred tax assets to be recovered within 12 months		8,624,603
	₩	34,010,018
Deferred tax liabilities		
Deferred tax liabilities to be recovered after more than 12 months		(11,186,879)
Deferred tax liabilities to be recovered within 12 months		(42,506)
	₩	(11,229,385)
Deferred tax assets (liabilities), net	₩	22,780,633

(5) Changes in deferred tax assets and liabilities for one-month period from December 1, 2021 to December 31, 2021, without taking into consideration the offsetting of balances within the same tax jurisdiction, are as follows:

(in thousands of Korean won)	**For one-month period from December 1, 2021 to December 31, 2021**			
	Beginning balance	**Statement of profit or loss**	**Other comprehensive income**	**Ending balance**
Government grants	₩ 864,427	₩ (8,758)	₩ -	₩ 855,669
Depreciation	13,795,150	1,972	-	13,797,122
Defined benefit obligations	635,199	(1,812,012)	24,707	(1,152,106)
Intangible assets	833,670	(4,515)	-	829,155
Undetermined costs	6,766,497	1,304,000	-	8,070,497
Others	352,585	27,711	-	380,296
Total	₩ 23,247,528	₩ (491,602)	₩ 24,707	₩ 22,780,633

(6) Details of unrecognized deductible (taxable) temporary differences as deferred tax assets (liabilities) as of December 31, 2021, are as follows:

(in thousands of Korean won)	**2021**	**Remarks**
Interests in subsidiary and others	₩ (13,190,644)	No plan for disposal and dividends

26. Earnings per Share

(1) Basic earnings per share for one-month period from December 1, 2021 to December 31, 2021, are as follows:

(in thousands of Korean won)		For one-month period from December 1, 2021 to December 31, 2021
Profit for the year attributable to owners of the parent	₩	5,858,965
Weighted-average number of ordinary share outstanding [1]		15,000,000 shares
Basic earnings per share	₩	391 won

[1] The weighted average number of ordinary shares outstanding is calculated as total number of ordinary shares issued divided by the period outstanding. The number of ordinary shares outstanding is the same as the number of issued shares since the Group does not hold treasury shares for one-month period from December 1, 2021 to December 31, 2021.

Since there is no dilution effect of potential ordinary shares of the Group, basic earnings per share and diluted earnings per share are the same.

27. Transactions with related parties

(1) Related parties of the Group as of December 31, 2021 are as follows:

Type	Name of related party
Parent	SK Holdings Co., Ltd.
Other related parties	SK conglomerate affiliates[1]

[1] The entities do not correspond to the related parties defined in paragraph 9 of KIFRS 1024 but are classified as related parties according to the resolution of the Securities and Futures Commission. According to the resolution, the conglomerate affiliates designated by the Fair Trade Commission are related parties due to their substantive relationships stipulated in paragraph 10 of KIFRS 1024.

(2) Details of significant transactions with the related parties for one-month period from December 1, 2021 to December 31, 2021, are as follows:

(in thousands of Korean won)

	For one-month period from December 1, 2021 to December 31, 2021			
	Sales and others	Purchase of inventory	Acquisition of property, plant and equipment and intangible assets	Other purchases
Parent company				
SK Holdings Co., Ltd.	₩ -	₩ -	₩ 408,899	₩ 1,088,304
Other related parties				
SK Telecom Co., Ltd.	1,500	-	-	90,262
SK Networks Co., Ltd.	-	-	-	2,057
SK Innovation Co., Ltd.	-	-	-	89,659
SK Energy Co., Ltd.	-	-	-	1,680
SK Siltron Co., Ltd.	-	-	-	511,903
SK Broadband Co., Ltd.	-	-	-	3,280
SK Magic Co., Ltd.	-	-	-	7,023
SK Pinx Co., Ltd.	-	-	-	1,807
SK M&Service Co., Ltd.	-	-	-	51,562
SK Shieldus Co., Ltd.	-	-	121,375	60,491
FSK L&S Co., Ltd.	-	6,296	-	2,401
CAPSTEC Co., Ltd.	-	-	-	103,888
SK Showa Denko Co., Ltd.	726,142	-	-	577,455
SK Materials airplus Co., Ltd.	496,505	1,112,838	-	6,106,757
SK Tri Chem Co., Ltd.	403,129	-	-	47,157
SK Materials renewtech Co., Ltd.	85,400	251,424	6,930	11,547
Happy Companion Co., Ltd.	4,398	-	-	110,327
SK JNC Japan	34,248	-	-	-
SK Materials (Shanghai) Co., Ltd.	540,475	-	-	67,520
SK Materials Performance Co., Ltd.	229,007	-	-	-
SK Materials Group14 Co., Ltd.	988	-	-	-
SK Materials JNC Co., Ltd.	36,212	-	-	-
SK Hynix Inc.	14,782,070	-	-	-
SK hynix Semiconductor(China) Ltd.	681,993	-	-	-
SK Hynix System IC Inc.	81,610	-	-	-
Happynarae Co., Ltd.	-	332,891	-	14,435
LTCAM Co., Ltd.	-	304,963	-	-
Total	₩ 18,103,677	₩ 2,008,412	₩ 537,204	₩ 8,949,515

(3) Details of significant outstanding balances of receivables and payables with the related parties as of December 31, 2021 are as follows:

(in thousands of Korean won)	2021			
	Receivables		Payables	
Name of entity	Trade accounts receivables	Other receivables	Trade payables	Other payables
Parent company				
SK Holdings Co., Ltd.	₩ -	₩ 126,700	₩ -	₩ 1,980,807
Other related parties				
SK Telecom Co., Ltd.	-	2,139	-	98,915
SK Networks Co., Ltd.	-	-	-	2,057
SK Innovation Co., Ltd.	-	-	-	98,625
SK Energy Co., Ltd.	-	-	-	1,848
SK Siltron Co., Ltd.	-	-	-	510,273
SK Magic Co., Ltd.	-	-	-	7,241
SK Pinx Co., Ltd.	-	1,066,500	-	1,977
SK M&Service Co., Ltd.	-	-	-	110
SK Shieldus Co., Ltd.	-	-	-	200,053
FSK L&S Co., Ltd.	-	-	551	8,146
CAPSTEC Co., Ltd.	-	-	-	114,276
SK Showa Denko Co., Ltd.	420,077	1,477,824	-	635,141
SK Materials airplus Co., Ltd.	97,206	478,949	-	6,565,959
SK Tri Chem Co., Ltd.	206,181	442,011	-	43,207
SK Materials renewtech Co., Ltd.	-	93,939	-	296,891
Happy Companion Co., Ltd.	-	4,837	-	121,360
SK Materials (Shanghai) Co., Ltd.	2,899,881	1,900	-	89,953
SK Materials Performance Co., Ltd.	169,782	82,017	-	-
SK Materials Group14 Co., Ltd.	-	1,087	-	-
SK JNC Japan	-	34,248	-	-
SK Materials JNC Co., Ltd.	-	39,031	-	-
SK Hynix Inc.	11,028,353	-	-	-
SK hynix Semiconductor(China)Ltd.	774,185	-	-	-
SK Hynix System IC Inc.	269,554	-	-	-
Happynarae Co., Ltd.	-	-	336,133	45,851
LTCAM Co., Ltd.	-	-	304,963	-
Total	₩ 15,865,219	₩ 3,851,182	₩ 641,647	₩ 10,822,690

(4) There are no Financial transactions with related parties for one-month period from December 1, 2021 to December 31, 2021.

(5) Payment guarantees and provision of collateral

1) As of December 31, 2021, there are no payment guarantees provided by the Group for the financial supports to the related parties.

2) As of December 31, 2021, there are no payment guarantees provided by the related parties.

(6) Details of compensation to the management for one-month period from December 1, 2021 to December 31, 2021, are as follows:

(in thousands of Korean won)		**For one-month period from December 1, 2021 to December 31, 2021**
Short-term employee benefits	₩	553,736
Retirement benefit expense		33,262
Other long-term benefits		1,953
Total	₩	588,951

Key management above has the authority and responsibility in the planning, operation and control of the Group’s activities.

28. Cash Flow Information

(1) Details of non-cash adjustments and working capital adjustments

(in thousands of Korean won)		**2021**
Profit for the year	₩	5,848,385
Adjustments for:		
Income tax expense		2,106,137
Retirement benefit expense		379,754
Depreciation		6,846,563
Depreciation of right-of-use assets		255,875
Amortization of intangible assets		264,759
Depreciation of investment properties		29,275
Loss on disposal of property, plant and equipment		37,864
Interest income		(134,368)
Gain on foreign currency translation		(71,603)
Interest expenses		1,002,109
Loss on foreign currency translation		254,146
Miscellaneous income		(4,205)
Miscellaneous loss		80,893
Change in operating assets and liabilities:		
Trade accounts receivables		(21,838,065)
Other current financial assets		(1,126,441)
Other current assets		3,263,328
Inventories		(2,552,513)
Other non-current assets		(32,440)
Trade accounts payables		1,771,534
Other current financial liabilities		1,827,966
Other current liabilities		(287,478)
Other non-current liabilities		(919,413)
Net defined benefit liabilities		(11,183,052)
Cash generated from operations	₩	(14,180,990)

(2) Significant transactions not affecting cash flows:

(in thousands of Korean won)		**2021**
Reclassification of construction in progress to property, plant and equipment	₩	63,222,976
Reclassification of construction in progress to other accounts		5,336,849
Changes in non-trade accounts payables in relation to acquisition of property, plant and equipment and others		(1,152,684)

(3) Changes in liabilities arising from financing activities

Changes in liabilities arising from financial activities for one-month period from December 1, 2021 to December 31, 2021, are as follows:

			Non-cash changes					
(in thousands of Korean won)	**Beginning**	**Cash flows from financing**	**Acquisition - lease**	**Amortization**	**Interest expense on lease**	**Exchange rate changes**	**Others**	**Ending**
Short-term borrowings	₩106,149,354	₩31,414,769	₩ -	₩ -	₩ -	₩ (95,353)	₩ -	₩137,468,770
Current portion of debentures	99,949,067	-	-	12,132	-	-	-	99,961,199
Debentures (non-current)	358,888,435	-	-	36,581	-	-	-	358,925,016
Lease liabilities	9,777,023	(188,956)	1,414,947	-	19,159	(3,717)	(1,851,308)	9,167,148
Total	₩574,763,879	₩31,225,813	₩ 1,414,947	₩ 48,713	₩ 19,159	₩ (99,070)	₩ (1,851,308)	₩605,522,133

29. Contingencies and Commitments

(1) Commitments arising from financial transactions

As of December 31, 2021, the Group has commitments with financial institutions as follows:

(in thousands of Korean won, thousands of JPY, USD) Classification	Financial institutions	Currency	Limit 2021
Borrowing agreement	KEB Hana Bank	KRW	10,000,000
	KB Kookmin Bank	KRW	30,000,000
	Industrial Bank of Korea	KRW	10,000,000
	Daegu Bank	KRW	12,000,000
	Shinhan Bank	KRW	10,000,000
	Shinhan Bank (Osaka branch of Japan)	JPY	230,000
	Korea Development Bank	KRW	50,000,000
	Korea Development Bank (Guangzhou branch of China)	USD	4,000,000
	Korea Development Bank (Guangzhou branch of China)	USD	10,000,000
	MUFG Bank[1]	USD	30,000,000
	MUFG Bank (Wuxi branch of China)	USD	15,000,000
	MUFG Bank (Yokkaichi branch of Japan)	JPY	90,000
	Mizuho Bank[1]	USD	32,000,000
	Agricultural Bank of China	KRW	45,000,000
	China Everbright Bank	KRW	20,000,000
	The Export-Import Bank of Korea	KRW	50,000,000
	Sumitomo Mitsui Bank	KRW	50,000,000
Opening letters of credit	Daegu Bank	KRW	2,500,000
	MUFG Bank[1]	USD	30,000,000
	Mizuho Bank[1]	USD	30,000,000
Electronic bill-collateralized trade accounts receivable (cooperative entities)	Shinhan Bank	KRW	5,000,000
	Nonghyup Bank	KRW	5,000,000
Factoring agreement	KEB Hana Bank	USD	10,000,000
	MUFG Bank	USD	20,000,000
	Deutsche Bank	USD	20,000,000

[1] Comprehensive common limit of borrowing agreement, opening L/C agreement and others

In relation to the above borrowings agreements, property, plant and equipment of the Group are provided as collateral (Note 30).

(2) Payment guarantees

As of December 31, 2021, the Group has not received payment guarantees.

As of December 31, 2021, the Group has been provided with performance guarantee amounting to ₩ 344 million by Seoul Guarantee Insurance Co., Ltd.

The Group is responsible for repaying the debts of the former SK Materials Co., Ltd. in conjunction with SK Holdings Co., Ltd.

(3) Major supply agreement

As of December 31, 2021, the Group has entered into long-term supply contracts and is supplying products to Japan Material Co., Ltd.

(4) Major purchase agreement

As of December 31, 2021, the Group has entered into long term purchase contract to buy liquid nitrogen with SK Materials airplus Incorporated.

(5) As of December 31, 2021, there are no pending litigation cases in which the the Group is a defendant.

30. Assets Pledged as Collateral and Restricted Financial Instruments

(1) Details of assets pledged as collateral as of December 31, 2021, are as follows:

(in thousands of Korean won, USD, thousands of JPY)

Pledged assets	2021							
	Carrying amount		Secured amount		Related line item	Related amount		Secured party
Land, buildings and machinery	KRW	58,212,589	KRW JPY USD	137,000,000 3,690,000 3,500,000	Borrowings (Note 16)	KRW	50,000,000	Korea Development Bank
Buildings	KRW	908,118	KRW	1,668,283	Government grants	KRW	847,674	Yeongju-si, /Provincal government of Gyeongsangbuk-do
Land and buildings	JPY	146,097	JPY	315,000	Borrowings (Note 16)	JPY	-	MUFG Bank (Yokkaichi Branch of Japan)

(2) Details of restricted financial instruments as of December 31, 2021, are as follows:

(in thousands of Korean won)		**2021**	**Remark**
Long-term financial instruments	₩	2,000	Deposit for checking accounts

31. Financial Risk Management

The Group's activities expose it to a variety of financial risks: market risk (including foreign exchange risk and interest risk), credit risk and liquidity risk. The Group's overall risk management program focuses on the unpredictability of financial markets and seeks to minimize any adverse effects on the financial performance of the Group.

Risk management is carried out under policies approved by the Board of Directors. The Board reviews and approves written principles for overall risk management, as well as written policies covering specific areas, such as foreign exchange risk, interest rate risk, credit risk, and investment of excess liquidity.

(1) Market Risk

1) Foreign exchange risk

Foreign currency risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in foreign exchange rates. The exposure to the risk of changes in foreign exchange rates relates primarily to the operating activities of the Group. The Group manages its foreign currency risk periodically.

The Group's financial assets and liabilities exposed to foreign currency risk as of December 31, 2021, are as follows:

(in USD, thousands of JPY, CNY and thousands of Korean won)	**2021**		
	Foreign currency	**Korean won**	
Financial assets			
USD	60,850,518	₩	72,138,290
JPY	418,909		4,315,771
CNY	2,193,000		408,468
		₩	76,862,529
Financial liabilities			
USD	21,154,328	₩	25,078,456
JPY	62,285		641,689
		₩	25,720,145

The table below summarizes the impact of 10% increase or decrease in exchange rate on the Group's net income (loss) before tax as of December 31, 2021. The analysis is based on the assumption that Korean won has strengthened or weakened in by 10% with all other variables held constant.

(in thousands of Korean won)	2021	
	10% Increase	**10% Decrease**
Impact on profit before income tax for the year	5,114,238	(5,114,238)

2) Interest rate risk

Interest rate risk is defined as the risk that the interest income or expenses arising from deposits and borrowings will fluctuate because of changes in future market interest rate. The interest rate risk mainly arises on floating rate deposits and borrowings. The objective of interest rate risk management lies in maximizing corporate value by minimizing uncertainty in interest rates fluctuations and net interest expense.

The table below summarizes the impact of increases/decreases of interest rate on the Group's net income (loss) before tax as of December 31, 2021. The analysis is based on the assumption that the interest rate has increased or decreased by 1% (100 basis points) with all other variables held constant.

(in thousands of Korean won)	2021	
	1% Increase	**1% Decrease**
Impact on profit before income tax for the year	(1,575,710)	1,575,710

(2) Credit Risk

1) Risk management

Credit risk is managed on a group basis. Credit risk arises from cash and cash equivalents, derivative financial instruments and deposits with banks and financial institutions, as well as credit exposures to customers, including outstanding receivables and committed transactions. For banks and financial institutions, only independently rated parties with a minimum rating of ‘A’ are accepted. If there is no independent rating, credit risk is assessed by taking into account the financial position, past experience and other factors. Individual risk limits are set based on internal or external ratings in accordance with limits set by the Board. The compliance with credit limits by customers is regularly monitored by management.

There were no customers exceeding their credit limits for the period, and the management does not expect any losses relating to default of customers under the terms of the agreements.

The maximum exposure to credit risk as of December 31, 2021, is as follows:

(in thousands of Korean won)		**2021**
Cash and cash equivalents	₩	19,899,842
Trade accounts receivables		81,039,767
Current and non-current loan		2,407,460
Other receivable		3,820,019
Accrued income		1,024
Current and non-current deposit		1,448,629
Non-current financial instruments		2,000

2) Impairment of financial assets

The Group has two types of financial assets that are subject to the expected credit loss model:

- trade accounts receivables for sales of goods and provision of services,
- other receivables carried at amortized cost.

Details of trade accounts receivables and other receivables after the collection period as of December 31, 2021, are as follows:

(in thousands of Korean won)

	2021			
	Normal Receivables	**Overdue but not impaired receivables**	**Impaired Receivables**	**Total**
		Less than 1 month		
Trade accounts receivables	₩ 80,634,946	₩ 404,821	₩ -	₩ 81,039,767
Other receivables	7,679,132	-	-	7,679,132
Total	₩ 88,314,078	₩ 404,821	₩ -	₩ 88,718,899

The Group applies the simplified approach, which is recognizing expected credit losses throughout the financial year as a loss allowance for trade accounts receivables. The Group estimated expected credit losses by using information that can affect credit risks related to sales clients. As of December 31, 2021, there are no impaired receivables.

- Other financial assets amortized cost

All of the financial assets at amortized costs are considered to have low credit risk. As of December 31, 2021, there is no impairment on other financial assets at amortized cost.

- Financial assets measured at fair value

The Group is exposed to credit risk on financial assets measured at fair value. Maximum exposure to credit risk at the reporting date is the book value of each class of financial assets.

(3) Liquidity Risk

The Group monitors rolling forecasts of the Group's liquidity requirements to ensure it has sufficient cash to meet operational needs while maintaining sufficient headroom on its undrawn committed borrowing facilities at all times so that the Group does not breach borrowing limits or covenants (where applicable) on any of its borrowing facilities. The Group's liquidity management policy involves projecting cash flows in major currencies and considering the level of liquid assets necessary to meet these, monitoring balance sheet liquidity ratios against internal and external regulatory requirements and maintaining debt financing plans.

Details of the contractual maturities of the Group's financial liabilities as of December 31, 2021, are as follows:

(in thousands of Korean won)	2021					
	Book value	**Cash flow from contract**	**Less than 3 months**	**Between 3 months and 1 year**	**Between 1 and 5 years**	**More than 5 years**
Borrowings	₩ 177,468,770	₩ 180,423,117	₩ 91,422,856	₩ 47,534,211	₩ 41,466,050	₩ -
Debentures	458,886,215	475,964,072	1,986,485	104,704,067	369,273,520	-
Trade accounts payables	13,484,055	13,484,055	13,484,055	-	-	-
Other financial liabilities	82,109,537	82,109,537	47,440,310	34,669,227	-	-
Lease liabilities	9,167,148	9,640,641	549,554	2,294,448	6,517,822	278,817

(4) Capital Risk Management

The Group's objectives when managing capital are to safeguard the Group's ability to continue as a going concern, so the Group can continue to provide returns for shareholders and benefits for other stakeholders, and to maintain an optimal capital structure to reduce the cost of capital.

The Group monitors capital on the basis of the gearing ratio. This ratio is calculated as net debt divided by total capital. Net debt is total borrowings less cash and cash equivalents. Total capital is 'equity' as shown in the consolidated statement of financial position plus net debt.

The gearing ratios as of December 31, 2021, are as follows:

(in thousands of Korean won)		**2021**
Total borrowings	₩	636,354,985
Less: cash and cash equivalents		(19,899,842)
Net debt		616,455,143
Total equity		340,689,016
Total capital	₩	957,144,159
Gearing ratio		64.41%

32. Greenhouse Gas Emission Rights and Liabilities

(1) Greenhouse emission rights received free of charge from the government are as follows:

(in tCO2-eq)		**Emission Rights**
	In 2021	262,357
3rd	In 2022	262,357
	In 2023	262,357
	In 2024	259,900
	In 2025	259,900
Total		1,306,871

(2) Changes in emission rights quantities and amounts are as follows:

(in tCO2-eq, in thousands of Korean won)	**2021**		**2022**		**2023**	
	Quantity	**Amount**	**Quantity**	**Amount**	**Quantity**	**Amount**
Beginning balance[1]	500	₩ -	-	₩ -	-	₩ -
Free allocation	262,357	-	262,357	-	262,357	-
Additional allocation[2]	-	-	26,281	-	48,377	-
Purchase	-	-	-	-	-	-
Surrendered to the government	-	-	-	-	-	-
Ending balance	262,857	₩ -	288,638	₩ -	310,734	₩ -

(in tCO2-eq, in thousands of Korean won)	**2024**		**2025**		**Total**	
	Quantity	**Amount**	**Quantity**	**Amount**	**Quantity**	**Amount**
Beginning balance[1]	-	₩ -	-	₩ -	500	₩ -
Free allocation	259,900	-	259,900	-	1,306,871	-
Additional allocation[2]	71,803	-	84,822	-	231,283	-
Purchase	-	-	-	-	-	-
Surrendered to the government	-	-	-	-	-	-
Ending balance	331,703	₩ -	344,722	₩ -	1,538,654	₩ -

[1] The amount was approved as the carried forward amount after the submission to government of emission rights of secondary planning period.

[2] The amount of additional allocated emission rights is estimates and may differ from the definite amount in the future.

(3) All emission rights held as of the end of the year to be submitted to the government are free allocations and the amount is zero(0) as of December 31, 2021. The Group is not aware of the emission liabilities since there would not be any emissions exceeding reserved emission rights quantities.

The estimated greenhouse gas emission rights for one-month period from December 1, 2021 to December 31, 2021, are 258,131 tCO2-eq.

33. Events After the Reporting Period

The Group has acquired SK Materials Shanghai, Co., Ltd and Happy Companion Co., Ltd. from SK Holdings Co., Ltd. on February 1, 2022, in accordance with a resolution of the Board of Directors on February 9, 2022.