Australasian (iron and steel) Slag Association Inc.

Membership Annual Survey Results

January to December 2024

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Summary

For the calendar period January to December 2024, 3.270 million tonnes (Mt) of iron and steel slag (ISS) were generated within Australian and New Zealand steel operations and/or imported from overseas sources for Australian consumption. During this period, 2.973 million tonnes or 90% of ISS was beneficially used within various value-added applications of the construction materials sector, resulting in the conservation of energy, finite natural resources, and the reduction of carbon emissions from these co-products.

Methodology

Annually, the Australasian (iron & steel) Slag Association (ASA) surveys its members[1] and non-members to capture data on ISS generation, recovery, importation, and sale into value-added applications for the calendar year. This report, compiled during 2025, reports on the aggregated volumes of (1) production, (2) importation and (3) sales for 2024.

The survey results include data from all iron and steel slags generators (iron & steel plants), marketers (processing and marketing companies) and captured users for the total production and sales by each reported end use. Data in the report is supplemented with secondary sources importation data[2] and other secondary data sources for accuracy purposes.

Information provided is reviewed, compared, collated before being aggregated into this national report by slag type; BFS; GBFS; SFS; EAFS; KOBM; Others[3] and by end uses for all slag products.

Discussion of results

During the period, the volume of ISS generated nationally combined with imports of GBFS decreased to a combined volume of 3.270 Mt down from 3.569 Mt in the previous period. Production of domestic ISS decreased while imports of GBFS increased by another ~ 100,000 tonnes, taking the total of GBFS import over 2 million tonnes. Overall demand for ground granulated blast furnace slag (GGBFS) use in the cement and concrete products continues to strengthen which is consistent with the longer term industry trends to reduce the carbon footprint for a given cubic meter of concrete. Utilisation across other categories correlates well with historical demand within the construction and infrastructure sectors, underpinned by major investments by State Governments within infrastructure. The trend and growth in iron and steel slags use in higher value-added applications continues.

Demand for fine and coarse aggregate use in structural/civil applications continues to be closely tied to consumption or growth in the future development of infrastructure in both

[1] http://www.asa-inc.org.au/membership/members-and-affiliates
[2] ABS [Austats] based on import tariff code data for Granulated Blast Furnace Slag (GBFS).
[3] http://www.asa-inc.org.au/products

urban and regional Australia – estimated to be in excess of 200 million tonnes annually[4]. Extractive resources are generally widespread and remain in adequate supply nationally, however, shortages in important large-scale markets (Sydney, Melbourne and Brisbane) continue to emerge, requiring additional logistics and associated handling costs not historically incurred. These are mainly attributed to unsuitable geology, conflicting or incompatible land uses and environmental problems caused by high rates of urban expansion. Natural sand and gravel resources are also being depleted leading to opportunities for substitution by manufactured sands from crushing operations.

Demand for granulated blast furnace slag (GBFS) within the cement and concrete sectors grew over the period. GBFS imports were 1.419 Mt. Overall from the combined 3.270 Mt generated and imported iron and steel slags, 2.973 Mt or 90% was effectively utilised within various value-added civil and construction material applications throughout Australasia.

The key results for the calendar period 2024 survey were:

- Approximately 3.270 Mt (million tonnes) of iron and steel slag was available for use within Australasia (Australia and New Zealand)
- From the ISS available, 2.973 Mt or 90 was effectively utilised [sold or reused for some beneficial use]
- On a per capita basis, this equates to approximately. ~100 kgs per person
- 2 Mt was used in cementitious applications - "high value add" [HVA][5] Note: approx. 1.419 Mt of GBFS was imported.
- 0.678 Mt was used in non-cementitious or road construction applications - medium value add [MVA][6].
- 0.287 Mt was in general civil or fill applications – low value add [LVA][7].

In summary, the longer-term trend of ISS materials end-use applications continues its movement from LVA to MVA and HVA applications. To these ends, the active use of these co-products continues to provide significant positive environmental impacts, including resource conservation and in this case, the reduction of greenhouse gas emissions from the processing of virgin resources.

Table 1 provides more detail for individual category sales of ISS for the period 2024, with comparisons against periods back to 2015.

Australasian (iron & steel) Slag Association
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[4] Quarrying Overview." Retrieved Sept, 2021, 2021, from https://www.ccaa.com.au/CCAA/Industry/Quarry/Overview/CCAA/Public_Content/INDUSTRY/Quarry/Quarry_Overview.aspx?hkey=03c6b3a0-5148-4ae4-b751-83dec0318519

[5] HVA – High Value Add – means where ISS materials are sold for > (more than) $100/tonne

[6] MVA – Medium Value Add – means where ISS materials are sold for between $10-$100/tonne

[7] LVA – Low Value Add – means where ISS materials are sold for < (less than) $10/tonne

Australasian (iron & steel) Slag Association

2024 Slag Production & Sales Survey

SECTION A Slag Production (tonnes)	BFS	GBFS	SFS	EAFS	KOBM	Other	2024 Combined
A1. Total Produced (Jan-Dec)	224,739	673,654	301,703	118,622	30,000	219,573	1,568,291
A2. Total imported (Jan-Dec)		1,419,957					1,419,957
A3. Total Stored [not used]	74,279	0	48,798	5,627	0	7,811	136,515
A4. Total Removed from Storage	282,323	0	0	0	0	0	282,323
SECTION B Auto Calculations							**Combined**
B2. Total for use (Auto calc)	507,062	2,093,611	301,703	118,622	30,000	219,573	3,270,571
SECTION C Slag Use (tonnes)	**BFS**	**GBFS**	**SFS**	**EAFS**	**KOBM**	**Other**	**Combined**
C1. Cement or Binder products	0	2,008,338	0	0	0	0	2,008,338
C2. Feed stock for Clinker/Glass products	31,707	31,707	62,178	0	0	0	125,592
C2. Grit Blasting products	0	0	0	0	0	0	0
C2. Structural Fills/Embankments	0	0	509	34,406	0	0	34,915
C2. Road Base/Sub-base	188,979	32,235	0	92,857	0	4,716	318,787
C2. Rockwool products	0	0	0	0	0	0	0
C2. Mineral Fillers (e.g Asphalt)	0	0	0	0	0	0	0
C2. Agricultural applications	0	0	0	0	0	0	0
C2. Water treatment/filtration products	0	0	0	11,806	0	0	11,806
C2. Asphalt & Concrete Aggregates	67,909	0	69,665	12,390	0	37,407	187,371
C3. Mining Applications	0	14,000	0	0	0	0	14,000
C3. Waste Stabilisation/Solidification	0	0	0	0	0	0	0
C3. Miscellaneous/Other	16,448	7,330	249,109	0	0	0	272,887
SECTION D Summary Results	**BFS**	**GBFS**	**SFS**	**EAFS**	**KOBM**	**Other**	**Combined**
D1. Total of all sold (Auto calc)	305,043	2,093,610	381,460	151,459	0	42,123	2,973,696
	60.16%	100.00%	126.44%	127.68%	0.00%	19.18%	90.92%

SECTION A Slag Production (tonnes)	2023 Combined	2022 Combined	2021 Combined	2020 Combined	2019 Combined	2018 Combined	2017 Combined	2016 Combined	2015 Combined
A1. Total Produced (Jan-Dec)	2,065,350	2,138,040	1,919,302	1,971,075	1,788,244	1,907,509	1,838,842	1,885,481	1,889,246
A2. Total imported (Jan-Dec)	1,354,499	1,236,295	1,204,127	1,266,075	1,066,244	1,107,098	918,630	1,047,918	1,006,980
A3. Total Stored [not used]	415,207	533,216	53,944	0	0	0	18,453	25,800	0
A4. Total Removed from Storage	150,000	0	602	0	0	55,000	4,794	25,800	0
SECTION B Auto Calculations	**Combined**	**Combined**	**Combined**	**Combined**	**Combined**	**Combined**	**Combined**	**Combined**	**Combined**
B2. Total for use (Auto calc)	3,569,850	3,374,334	3,177,975	3,237,150	2,854,488	3,069,606	2,762,266	2,959,199	2,896,226
SECTION C Slag Use (tonnes)	**Combined**	**Combined**	**Combined**	**Combined**	**Combined**	**Combined**	**Combined**	**Combined**	**Combined**
C1. Cement or Binder products	1,999,346	1,877,199 ##	1,704,063 ##	1,660,473	1,590,487	1,624,576	1,508,340	1,587,686	1,479,762
C2. Feed stock for Clinker/Glass products	161,241	135,753	107,916	86,970	115,714	88,362	94,878	88,919	126,645
C2. Grit Blasting products	0	0	0	0	0	0	0	0	0
C2. Structural Fills/Embankments	34,596	13,474	0	739	3,726	12,502	12,646	14,317	13,260
C2. Road Base/Sub-base	302,173	123,333	296,697	415,120	204,382	192,901	321,309	219,432	122,728
C2. Rockwool products	0	0	0	0	0	0	0	0	0
C2. Mineral Fillers (e.g Asphalt)	0	0	0	0	0	0	0	0	0
C2. Agricultural applications	0	0	0	0	0	0	0	0	275
C2. Water treatment/filtration products	20,802	3,351	0	0	0	0	0	0	0
C2. Asphalt & Concrete Aggregates	356,253	240,629	223,178	205,320	277,932	299,225	347,549	301,429	335,347
C3. Mining Applications	13,100	8,600	0	0	0	0	0	0	0
C3. Waste Stabilisation/Solidification	0	0	0	0	0	0	0	0	0
C3. Miscellaneous/Other	355,826	242,458 #	157,236 #	125,916	119,604	154,446	236,523	236,198	294,965
SECTION D Summary Results	**Combined**	**Combined**	**Combined**	**Combined**	**Combined**	**Combined**	**Combined**	**Combined**	**Combined**
D1. Total of all sold (Auto calc)	3,243,335	2,644,797	2,489,090	2,494,538	2,311,844	2,372,012	2,521,245	2,447,981	2,372,982
	90.85%	78.38%	78.32%	77.06%	80.99%	77.27%	94.64%	94.64%	95.06%

Table 1 - 2024 Slag Sales and Production Survey