

Bloodtear Industry Index Report

(Tyrannis)

Since the Dominion expansion there has been a new sovereignty mechanic that allows the development of system indices based on usage levels. It was quickly noted that raising the military index was extremely easy and took little time to maintain, but that the industry index would seemingly never increase despite how many miners you had.

The Bloodtear mining fleet has personally created four level 5 industry systems over the past few months, and monitored them over a period of weeks to gather this information. We've withheld publishing the report until after Tyrannis to update it with any changes. Tyrannis increased Rorqual boosted fleets by ~8.5% better yields per unit time, and altered a few ore refine tables. These things have been accounted for.

Industry is notoriously difficult to level up, and not much public information is available regarding details of the system. This report will attempt to answer all questions regarding the Industrial Index for the Dominion/Tyrannis expansion.



Data Collection

We directly monitored the IHUB index every 15 minutes over the course of system development. We managed to secure a remote system and upgrade it to level 5 from level 1 within 24hrs, with no one else in system. This gave us highly accurate numbers. Asteroid belts were scanned using a Rorqual scanner which can obtain an accurate read on the entire belt in one pass. Hidden belt composition was recorded immediately after downtime right after they had respawned. This was repeated for many weeks, and was noted that all hidden belts of the same size are nearly identical.

The System

The industrial index decays at a rate of 1% per hour (or around 25% per day). The index is increased by the total volume (m3) of mined goods. The following is a table illustrating the amount of m3 required to be mined to maintain each level:

Index Level	Mined volume to obtain (m3)	Volume/day to maintain (m3)	Man-hours/day to maintain
1	1,500,000	750,000	4.55
2	3,000,000	1,500,000	9.1
3	6,000,000	3,000,000	18.2
4	12,000,000	6,000,000	36.4
5	24,000,000	12,000,000	72.8

It should be noted that ice mining pulls up roughly half the volume of ore mining. So attempting to raise the index through ore mining is most preferred.

The belts respawn on a theoretical 3-day timer (this is contested with many people believing 4 days, or a random 3-5 days, our information on this conflicts, the report is based off the 3-day belief). If you drop below the threshold to maintain a belt, it will still exist until its 3-day timer is up, and won't come back until the index is back up. The index level of your system at downtime is what determines what will spawn. Mining a hidden belt to extinction will respawn it within 5 minutes if there is no one left in the belt. The hidden belts must be scanned down using probes. The larger a belt is the harder it is to scan down. Thus, small asteroid belts are the easiest to find. Every upgrade gets you everything contained by the previous upgrades, plus the current.

Index Level	What you get
1	Small
2	Moderate
3	Large
4	Extra Large
5	Giant

Perfect Miner Income

These are calculated with perfect skills, perfect Rorqual boosts, and T2 equipment, no drones. Skiffs are used only for mining mercoxit, mackinaws only for ice, and hulks only for ore. The cycle times got about 8.5% faster after Tyrannis due to doubling the rorqual's mining cycle boost effectiveness – which in turns makes gaining a high level industrial system much easier. These numbers are used throughout the rest of the report as means of estimating per profits/hr and man-hours required.

	Yield/cycle	Cycle time	Yield/hr	Volume/hr
Skiff	82	119.25	2475.5	99,018
Mackinaw	4	183.23	78.59	78,590
Hulk	5459m3	119.25	164,800m3	164,800

Now the relative profit rates mining each ore type assuming perfect refine:

Ore	ISK/hr
Arkonor	61,182,258
Bistot	47,917,634
Crokite	36,227,258
Mercoxit	30,134,016
Gneiss	19,596,239
Dark Ochre	19,292,428
Spodumain	17,393,404
Scordite	15,449,794
Plagioclase	14,631,242
Kernite	13,905,731
Veldspar	13,609,610
Hedbergite	13,389,607
Pyroxeres	11,854,366
Hemorphite	11,435,033
Jaspert	9,804,862
Omber	9,245,769

(May 29th 2010 prices)

Now we'll get into what each hidden belt contains, and what strategies you should use when mining them...

Small Asteroid Cluster

The small asteroid cluster is your first real foothold into the world of industry development. Up until this point you had to mine lots of small time asteroids that typically evaporated seconds into your cycle, leading to vast inefficiency, annoyance, and the need to move within range of new asteroids. The small asteroid cluster contains the single largest asteroid in the game, The Spod! The Spod is a whopping 4,000,000m³, at 250,000 units. It takes 24+ man-hours to mine this guy out, and doing so is enough to push a fresh level 1 system up into level 2. The entire belt is centered around The Spod.

The small belt is dispersed just enough to make you move 3-4 times if you're mining it out completely. The combined total wealth contained in the small belt is 962mil, at 7.66mil m³, and takes 47 man-hours to mine. If you mine the small belt to completion you'll be halfway through level 2.

Average income in this belt is 20.5mil/hr per perfect miner. Cherry picking (mining ABCM – arkonor, bistot, crokite, mercoxite) potential in this belt is 300mil, taking 6.3 man-hours at an average profit of 47.5mil/hr.



Figure 1: The Spod. It blots out the sun (sun blotting not illustrated).

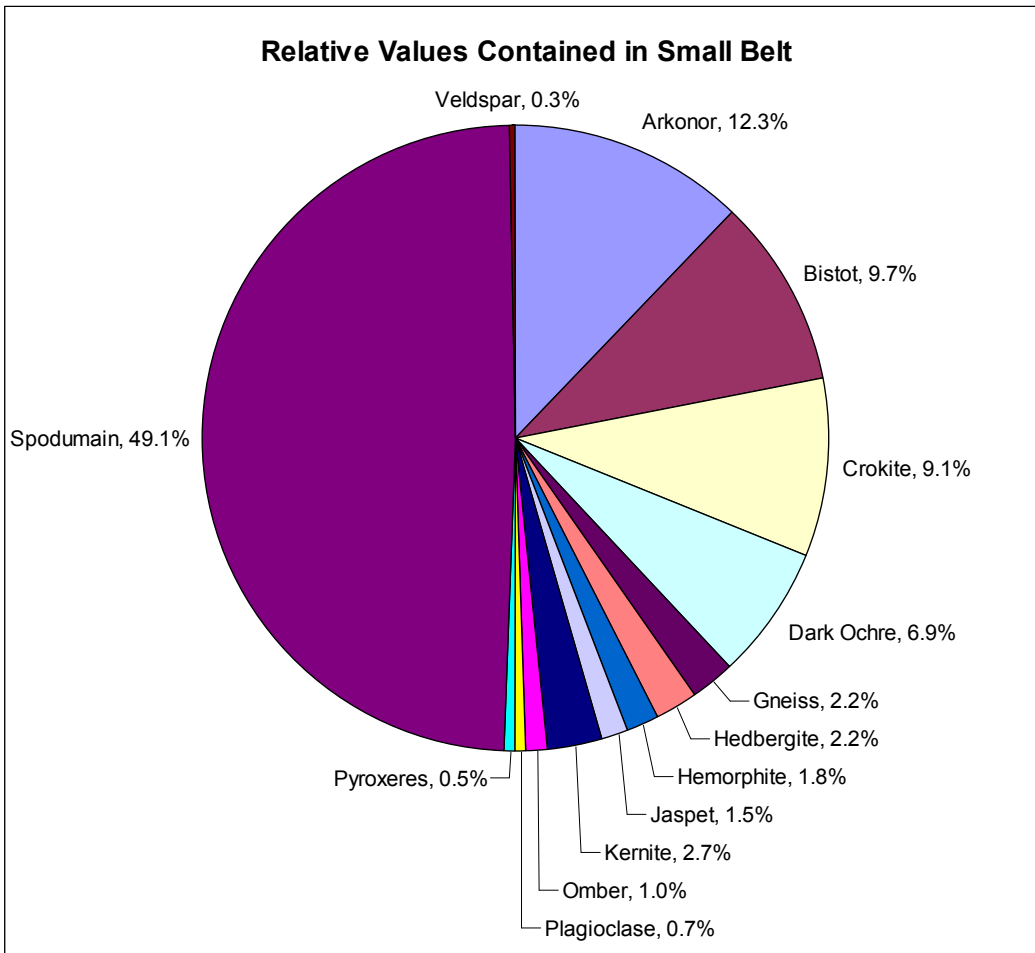
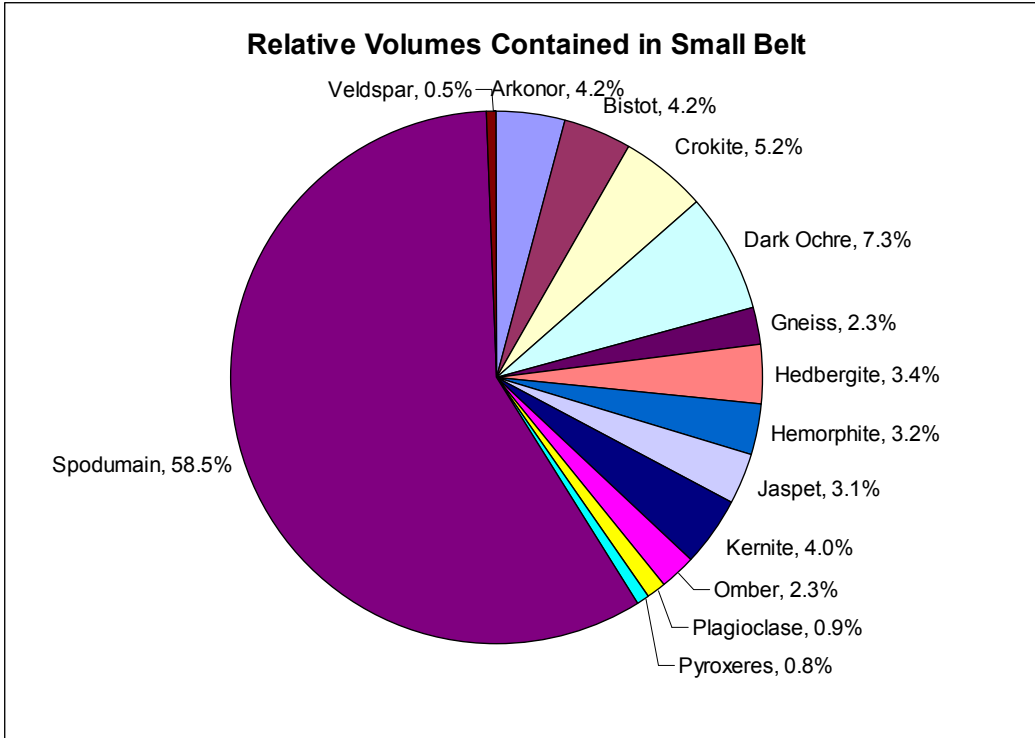
List of ores contained within:

Ore	Amount	Asteroids
Arkonor	20,000	4
Bistot	20,000	4
Crokite	25,000	2
Dark Ochre	70,000	2
Gneiss	35,000	1
Hedbergite	86,000	5
Hemorphite	83,000	8
Jaspert	120,000	5
Kernite	254,000	6
Mercorit	0	0
Omber	300,000	5
Plagioclase	208,000	4
Pyroxeres	210,000	4
Scordite	0	0
Spodumain	280,000	2
Veldspar	406,000	5



Figure 2: Always be sure to bring proper protection. Hulks may be strong against rats, but players can scan you down in under a minute, and seconds if you have a large hauling ship (orca/rorqual).

Small Asteroid Cluster



Moderate Asteroid Cluster

The moderate belt is fairly dispersed with an even spread of ores. If you're a T2 miner (which you should be), then you'll be swapping out crystals often in here, and be forced to move often (6+ times). The belt is around 150km long. The moderate belt is not worth mining to completion, it should only be cherry picked. The ABC represents 25% of the volume, and 50% of the value. This is the first belt you'll encounter with mercoxite. Mercoxite mining is HIGHLY inefficient with anything but a properly skilled skiff with mining crystals (and I mean that).

This belt is worth 801mil, which makes it worth LESS than the small. The volume is 5.35mil m³, taking only 34 man-hours to mine out. The average income is 23.6mil/hr per miner, which is slightly higher than the small belt. However, inefficiencies due to movement and constantly switching asteroids will bring the profit more in line with the small belt. Cherry picking potential however, is worth 484.5mil, taking 12.3hrs at a rate of 39.4 mil/hr.



Figure 3: Cherry pickers consuming an arkonor asteroid.

List of ores contained within:

Ore	Amount	Asteroids
Arkonor	30,000	2
Bistot	35,000	4
Crokite	20,000	2
Dark Ochre	40,000	4
Gneiss	45,000	4
Hedbergite	100,000	4
Hemorphite	100,000	4
Jaspert	120,000	4
Kernite	400,000	11
Mercosit	10,000	1
Omber	400,000	11
Plagioclase	840,000	11
Pyroxeres	965,000	11
Scordite	940,000	13
Spodumain	40,000	4
Veldspar	1,260,000	13



Figure 4: An overhead view of the moderate belt. Highlighted is the 26.4km radius circle from where the mining fleet was able to reach asteroids. The circle being 53km across, the vast size of this belt becomes apparent.

Moderate Asteroid Cluster

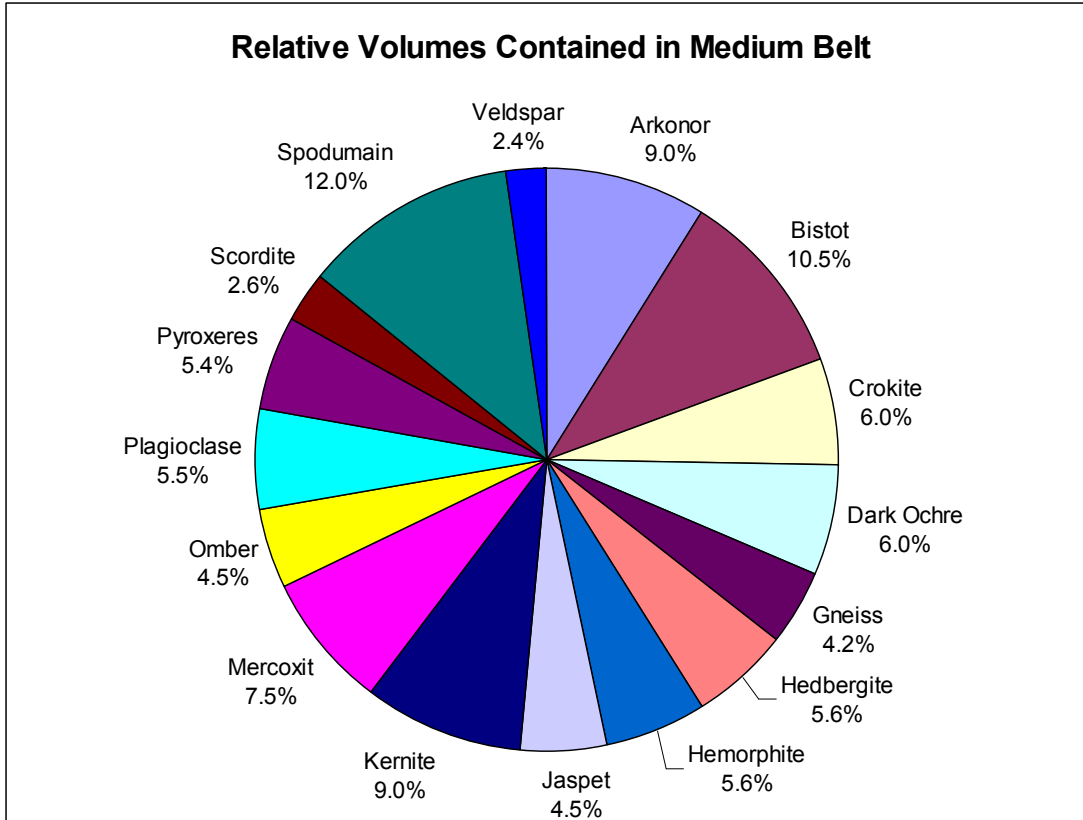


Figure 5: The moderate belt has a very well diversified collection of asteroids, which we hate.

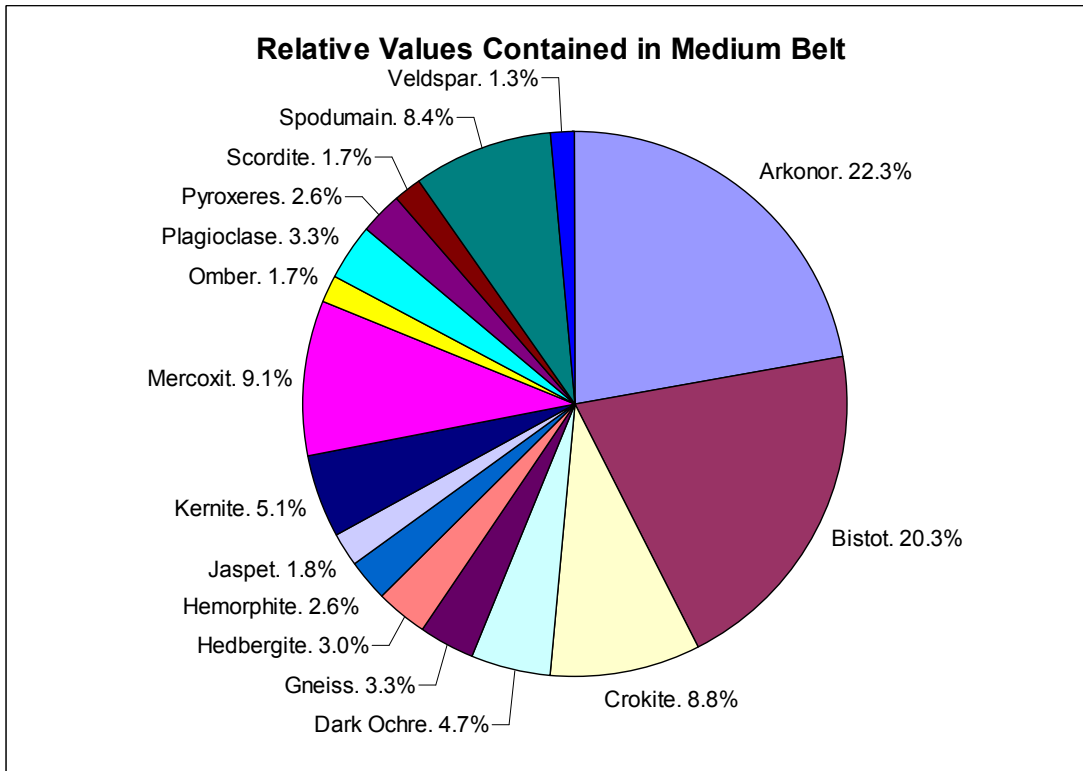


Figure 6: The value of ABC is more than half the belt, while representing less than a quarter the volume. Cherry pick this.

Large Asteroid Cluster

If you learn anything from this report, learn this. The large asteroid belt (level 3) is the most value asteroid belt you have. The large asteroid belt is completely minable from only two warp-in spots, which eliminates the need for movement (okay, have to move a little, but not more than 5km from those two spots). There are only a handful of asteroids, but each is very large, which makes mining them much easier as well. The belt itself is centered on a few white space coral type things which can and will bounce your hauler if you warp in too close to them. The mercoxit patch is close to one of the warp-in spots, so steer clear of that when setting up.

This belt is small at only 5.38mil m³, and takes only 34 man-hours to complete. However, the average profit per miner is the highest of any belt, at 27.4mil/hr. This belt contains 44.6% ABCM by volume, which is the highest of any belt. The total belt is worth only 930mil, but because it's so small, it's easily the most profitable belt to mine to completion repeatedly.

The cherry picking potential of this belt is 654.3mil m³, taking 16.2hrs, at 40.4mil/hr. Note that this is just under half the belt – which gives a fair estimate that this belt is worth a lot.



Figure 7: A group of miners can reach the entire belt from two spots, making this a very pleasant mining experience. Haulers beware the white coral formations, you'll bounce off them.

List of ores contained within:

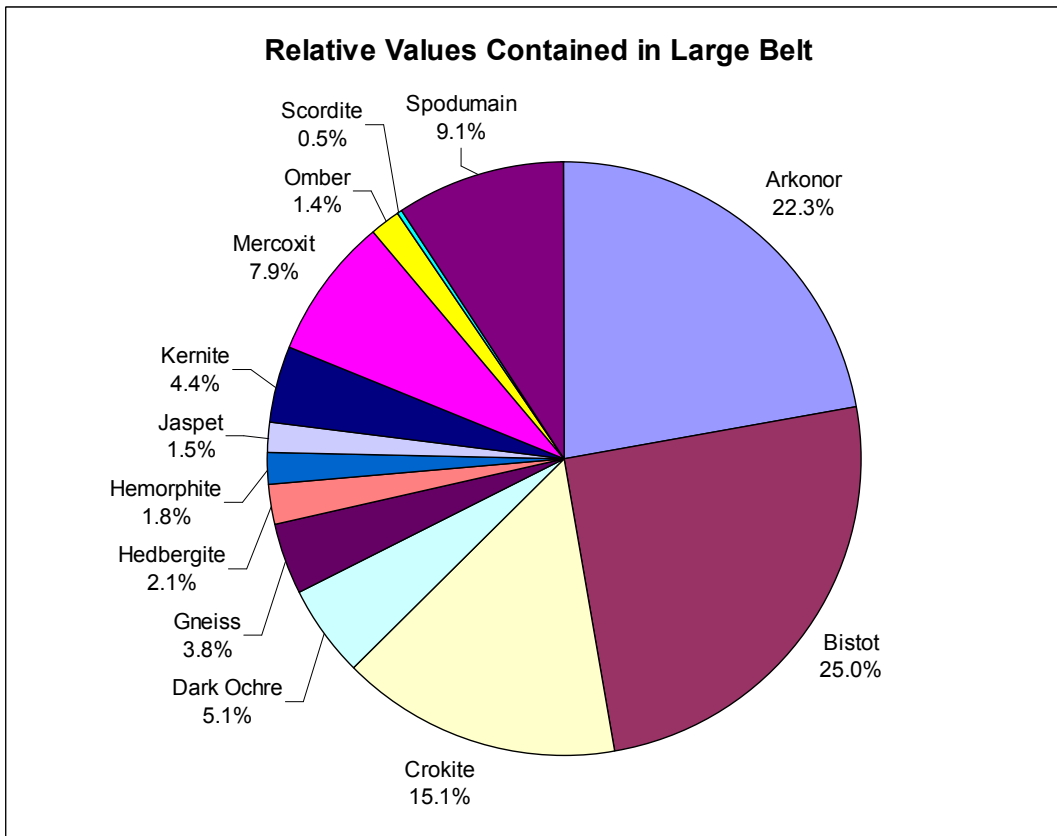
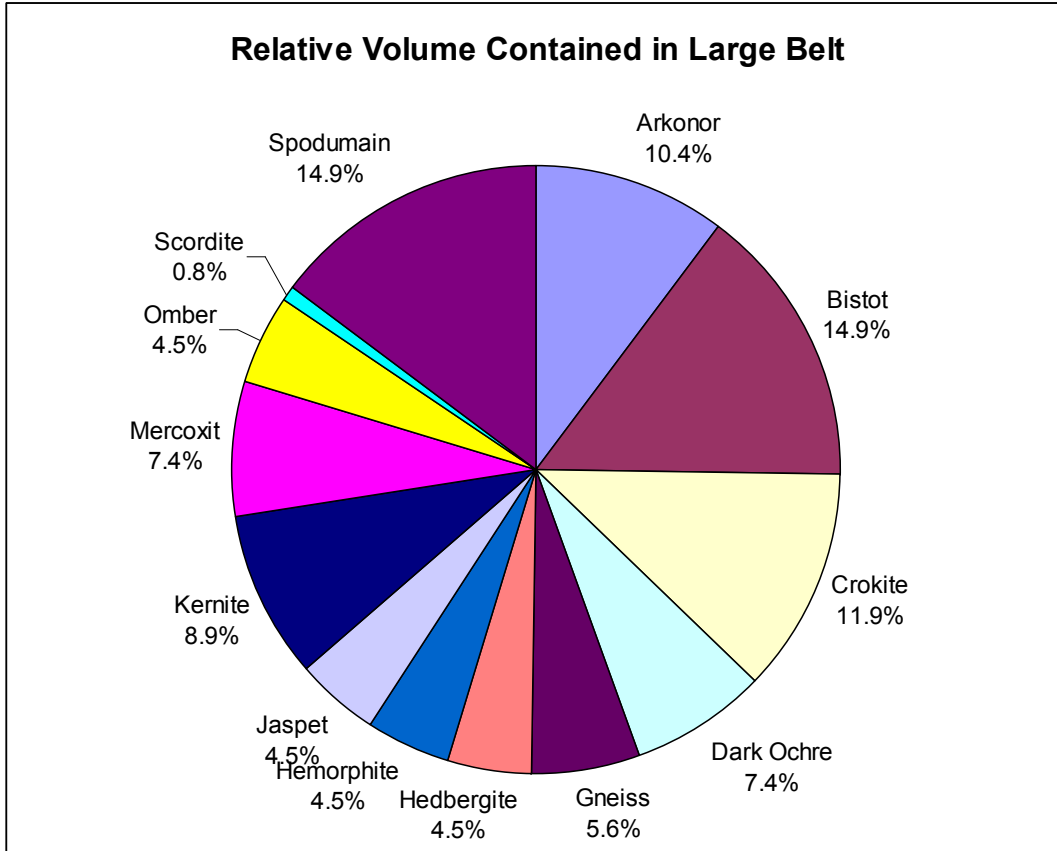
Ore	Amount	Asteroids
Arkonor	35,000	1
Bistot	50,000	1
Crokite	40,000	1
Dark Ochre	50,000	1
Gneiss	60,000	1
Hedbergite	80,000	1
Hemorphite	80,000	1
Jaspert	120,000	1
Kernite	400,000	4
Mercorit	10,000	1
Omber	400,000	3
Plagioclase	0	0
Pyroxeres	0	0
Scordite	300,000	2
Spodumain	50,000	1
Veldspar	0	0

This distribution demonstrates how concisely packed the asteroids are. Most occurrences are only in one asteroid, of a size slightly larger than the other belts.



Figure 8: Dantooine is too remote to make an effective demonstration. You may fire when ready.

Large Asteroid Cluster



Extra Large Asteroid Cluster

The extra large asteroid belt is composed like the moderate belt, but 100km long. As can be seen below from the asteroid counts, it contains lots of smaller asteroids, which will leave you shifting targets and moving frequently.

The extra large is 11.2mil m3 which is more than twice the size of the large belt. Taking 70 man-hours to mine, this is truly an extra large belt. It produces an average income of 22.4mil/hr. Cherry picking is worth 837.5mil, taking 21.6 man-hours at a rate of 38.8mil/hr. This belt should be cherry picked for ABCM only.

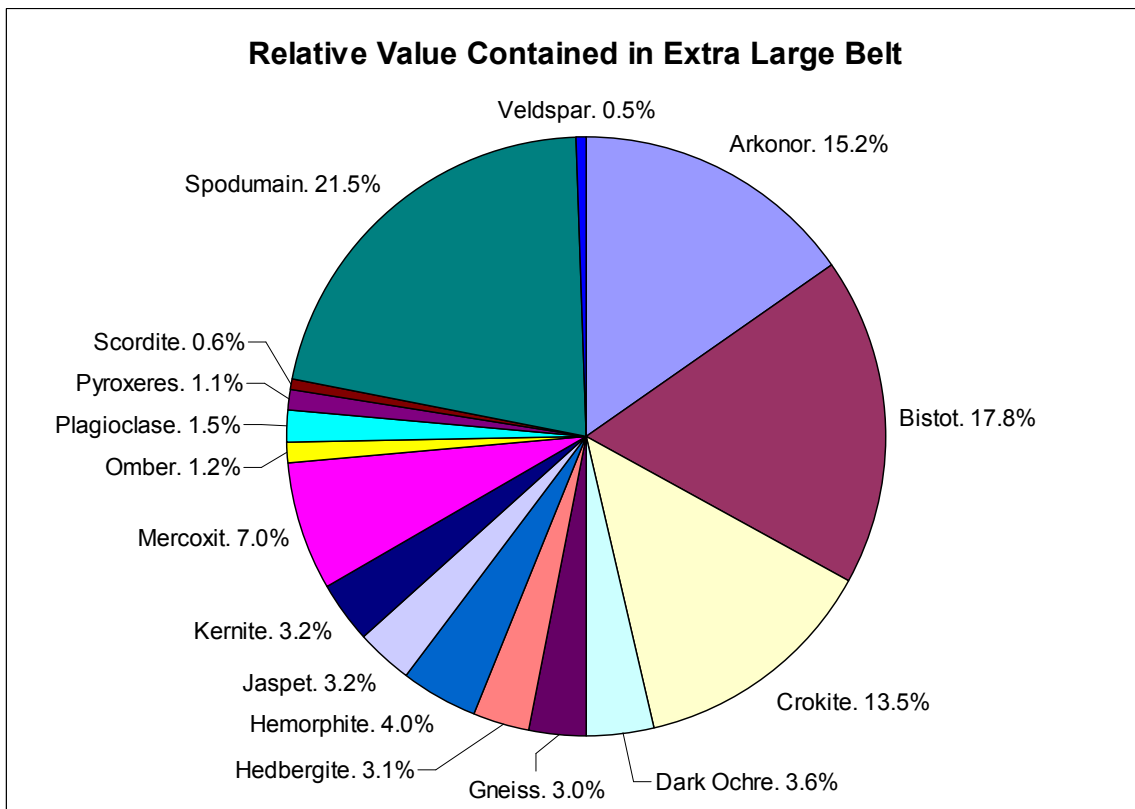
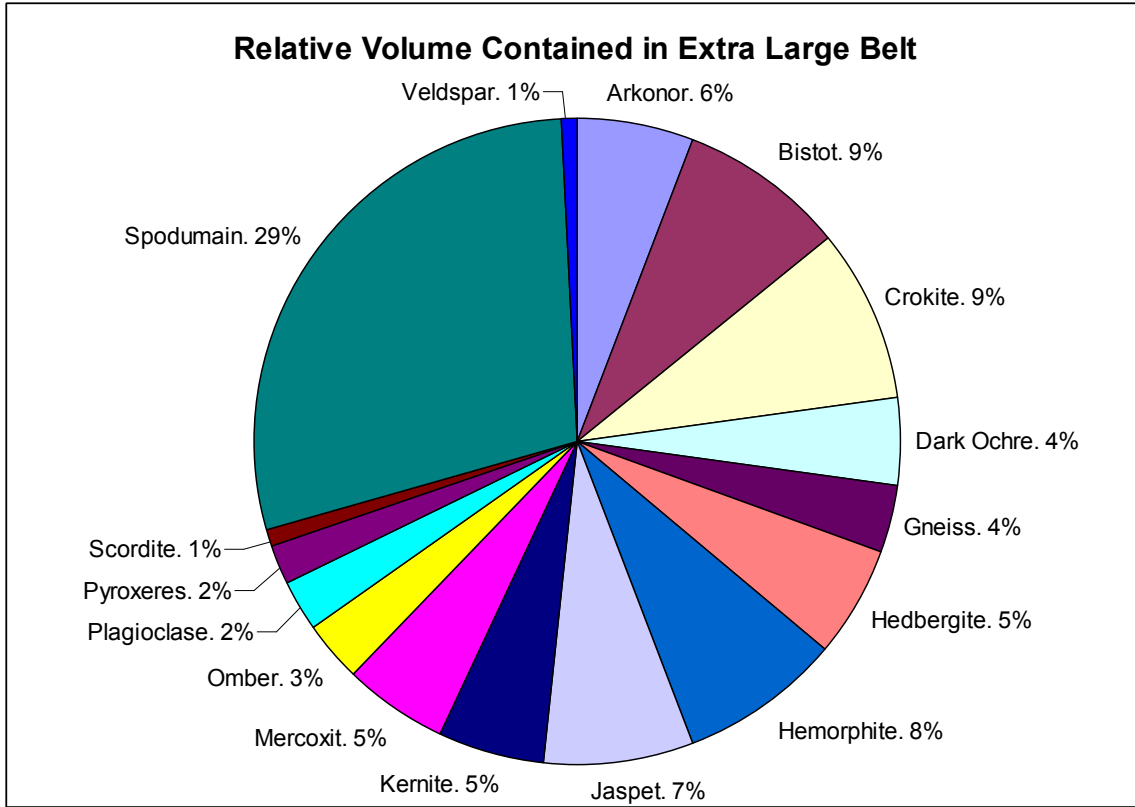
List of ores contained within:

Ore	Amount	Asteroids
Arkonor	40,000	4
Bistot	60,000	5
Crokite	60,000	5
Dark Ochre	60,000	5
Gneiss	80,000	6
Hedbergite	200,000	7
Hemorphite	300,000	10
Jaspert	420,000	11
Kernite	500,000	12
Mercosit	15,000	1
Omber	400,000	12
Plagioclase	560,000	12
Pyroxeres	765,000	10
Scordite	660,000	8
Spodumain	200,000	8
Veldspar	930,500	11



Figure 9: The extra large belt is spread out enough with such an even spread of ores that you'll be switching targets and moving frequently. Mining is typically done broad spectrum with the miners to persist as long as possible in one spot before moving on.

Extra Large Asteroid Cluster



Giant Asteroid Cluster

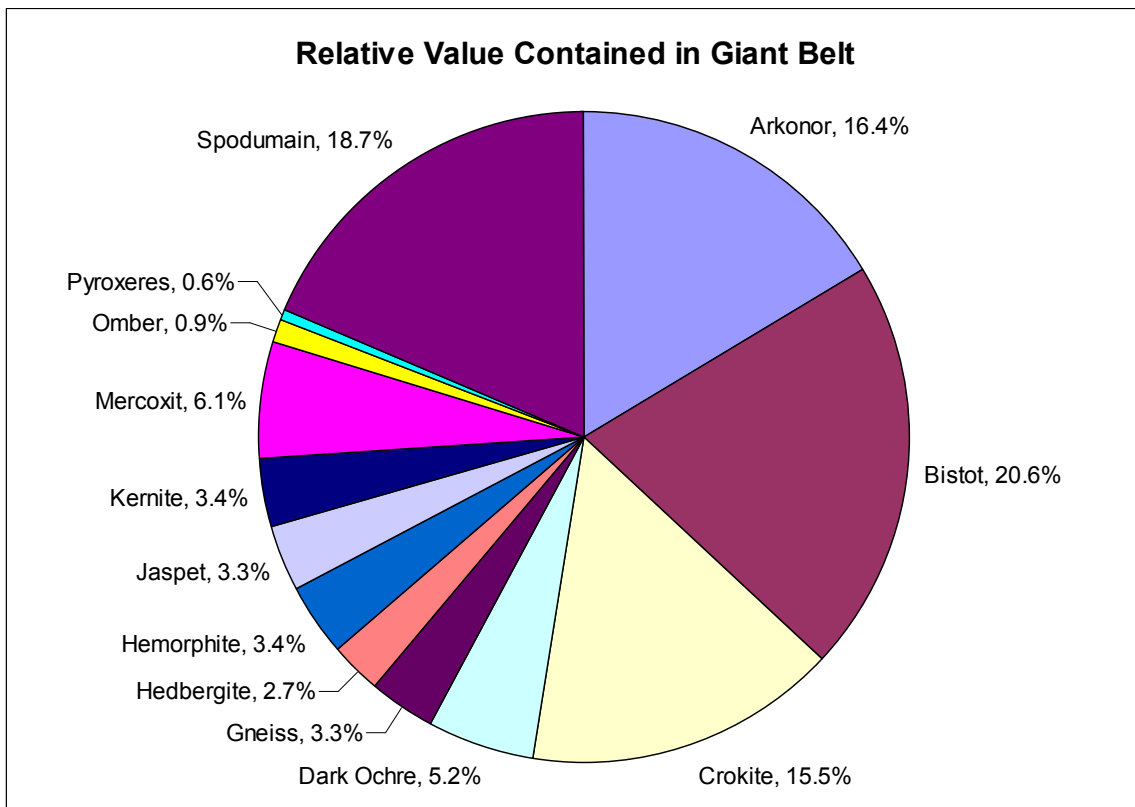
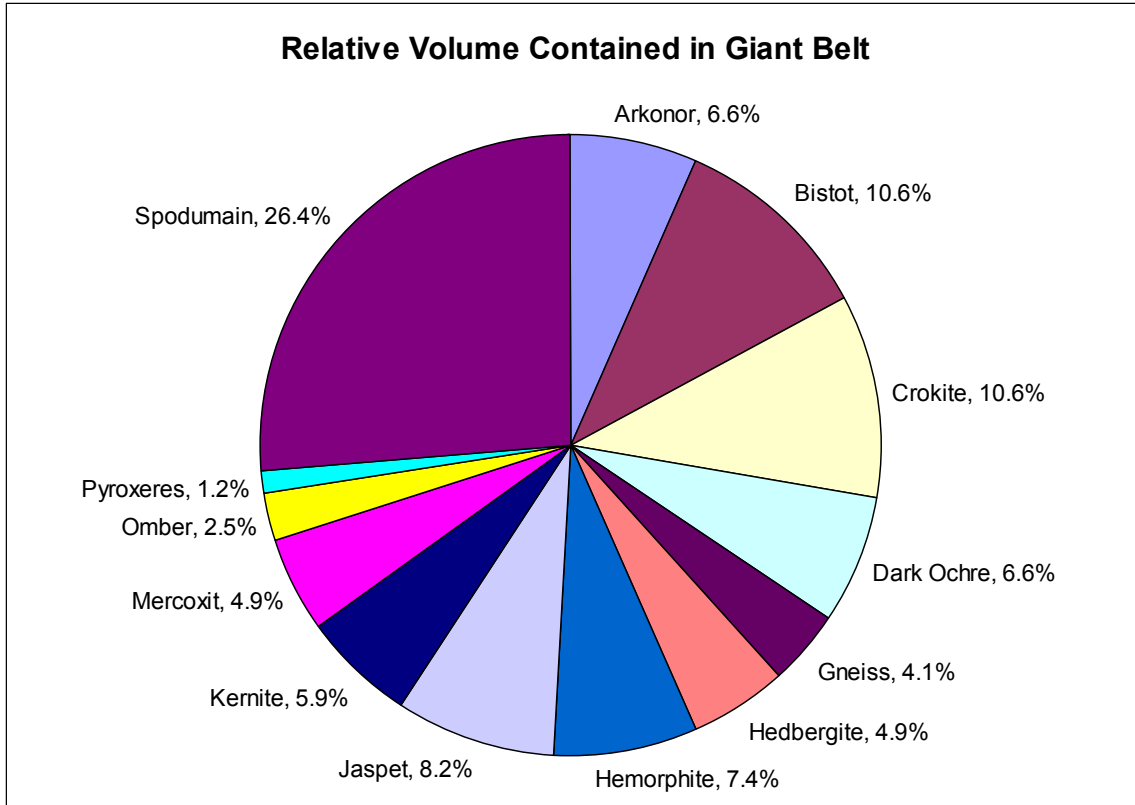
The giant asteroid belt is a monstrosity. It's big, so you will have to move a few times if you plan to mine this thing out, but you'll be spending hours at each spot. Each asteroid is very large which means it'll take a long time before you have to change targets. Mining out the bistot asteroid takes 7.8 man-hours by itself.

The entire belt is 12.12mil m³, making it the largest hidden belt in the game. It takes 76 man-hours from perfect miners to mine it completely. The total value is 1.81bil, yielding income of 23.8mil/hr per miner. The ABC ores compose more than a quarter the volume, and well over half the value. Cherry picking yields 1.06bil, takes 26.5hrs, and earns 40mil/hr. Mining this belt repeatedly may seem like a good idea, but you're still going to see more money if you cycle the large belt instead.

List of ores contained within:

Ore	Amount	Asteroids
Arkonor	50,000	1
Bistot	80,000	1
Crokite	80,000	1
Dark Ochre	100,000	1
Gneiss	100,000	1
Hedbergite	200,000	2
Hemorphite	300,000	3
Jaspert	500,000	4
Kernite	600,000	4
Mercosit	15,000	1
Omber	500,000	3
Plagioclase	0	0
Pyroxeres	480,000	6
Scordite	0	0
Spodumain	200,000	1
Veldspar	0	0

Giant Asteroid Cluster



Belt Comparison

We've pulled all the data from each belt together for quick comparison. It's amusing to note that the moderate and large belts are smaller than the small. The Large Asteroid Belt has the highest percentage of ABCM, which gives it the highest average income rate if mined repeatedly.

	Vol (m3)	Time	Value (mil)	Income (mil/hr)	Percent ABCM
Small	7,663,200	47	962	20.47	13.57%
Moderate	5,355,500	34	801	23.55	32.86%
Large	5,385,000	34	930	27.36	44.57%
xLarge	11,210,550	70	1,568	22.4	28.19%
Giant	12,124,000	76	1,811	23.83	32.66%

Table 1: This table compares belt size(volume in m3), man-hours required to mine it (time), total value of the belt, average income rate, and what percent of the belt is poachable.

This is all well and good you say, but I'm a poacher, and I want to cherry pick all the ABCM without wasting time mining anything else. The following chart is for you:

	Vol (m3)	Time	Value (mil)	Income (mil/hr)
Small	1,040,000	6.3	300	47.5
Moderate	1,760,000	12.3	484.5	39.4
Large	2,400,000	16.2	654.3	40.4
xLarge	3,160,000	21.6	837.5	38.8
Giant	3,960,000	26.5	1060.3	40.1

Table 2: This table compares the poaching potential of each belt, for consuming only arkonor, bistot, crokite, and mercoxit.

Now this is a perfect time to point out that selfishly mining only the ABCM is not enough to maintain the industry standing. Note that the belts are on a three day respawn timer, thus you only mine the cumulative volumes as noted above in Table 2. Below is a table of how sustainable each level is through only cherry picking. If you only wish to do cherry picking, then a level 2 or level 3 system is ideal.

	Volume per day	Volume/day to maintain (m3)	Percent maintained	ABCM manhours/day	Other manhours/day
Small	346,666	750,000	46.2%	2.1	2.45
Moderate	933,333	1,500,000	62.2%	6.2	2.9
Large	1,733,333	3,000,000	57.8%	11.6	6.6
Extra Large	2,786,667	6,000,000	46.3%	18.8	17.6
Giant	4,106,667	12,000,000	34.2%	27.6	45.2

Table 3: This table displays how far cherry picking will be able to maintain the industry standing at each level. Cherry picking man-hours are listed for fast reference, along with the man-hours required to make up the difference to maintain the industry level.

Belt Comparison

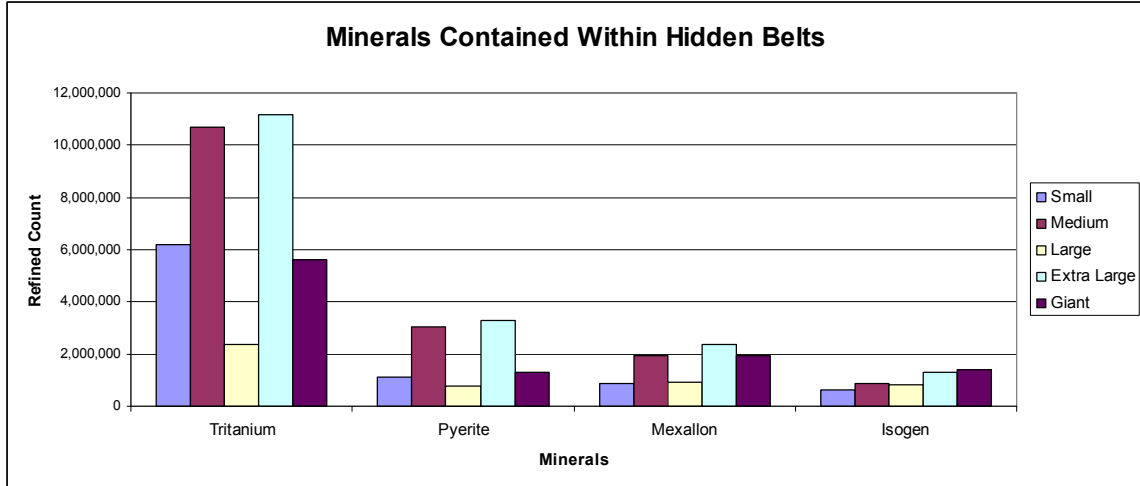


Figure 10: Low end minerals contained within each hidden belt.

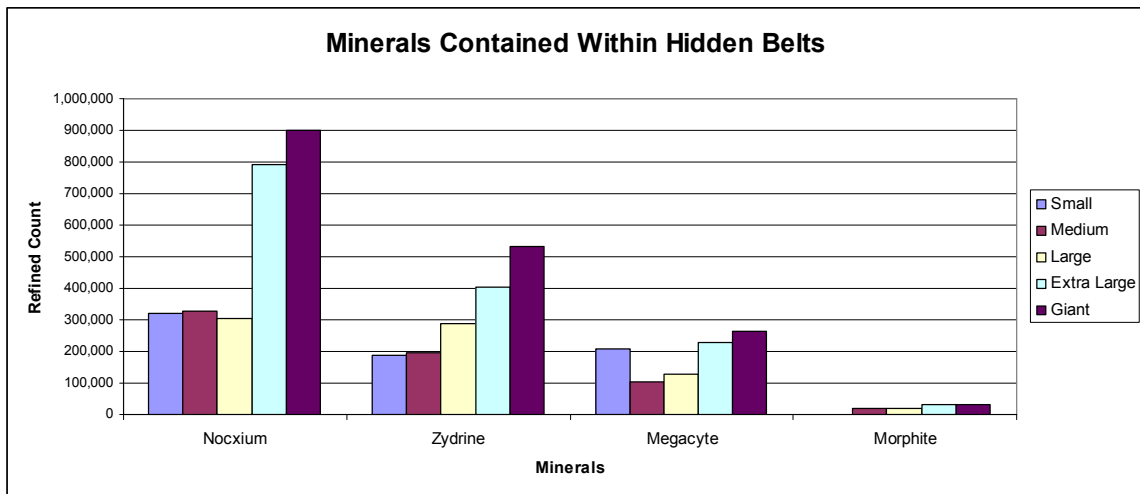


Figure 11: High end minerals contained within each hidden belt.

The hidden belts are good at obtaining high end minerals worth substantial sums. However, they are terrible at obtaining low end minerals such as tritanium and pyerite. This is the great imbalance of hidden belts which limits their usefulness for deep space mining operations. You may be able to mine all the high end minerals you need for construction jobs, but you'll still need to import low end stuff. There is no good way to mine large amounts of low end minerals, especially as veldspar rocks evaporate within a cycle of two of being touched.

Mining Strategy

This may sound foolish, since mining is point and shoot, but there are a number of things to take into consideration when setting up mining systems. The size of your corporation and number of regular active miners is obviously the most important. 1-2 miners can easily maintain a level 1 system with regular work, doubling the miner count for each level after that. Finding 32 regular unique miners to maintain a level 5 system is very hard. Most high level systems will be easier maintained by a few multiboxers sporting many accounts each.

Maintaining a level 5 system is possible, but not realistically feasible, nor desirable. For ideally mining a level 5 system, you'll want to cherry pick the small, moderate, extra large and giant belt, while cycling the large. You'll obtain 2,862 million from the non-large belts, and 930mil for each large you cycle. To maintain the required 36mil m3 to maintain level 5 every three days, you'll need to cycle the large belt 5 times, and completely cherry pick out the others. Doing this to minimally maintain level 5 is the most optimal way to milk the system, earning you 7.53bil every three days while taking 237 man-hours (79hrs/day). This yields 31.8mil/hr for each miner involved.

Great, but is there a better way? Yes there is. For the same amount of work of sustaining a level 5 system, you can sustain two level 4 systems. Cherry picking the small, moderate, and extra large, and cycling the large 2.25 times every three days, you'll earn 7.76bil, taking 233 man-hours at a rate of 32.9mil/hr.



Figure 12: A high quality view of the Small Asteroid Cluster featuring The Spod.

Mining Strategy

Splitting your efforts between two systems decreases the chance that you'll be noticed by enemy forces. So now you're thinking we can continue this pattern of having twice as many systems, at one less industry level to earn more money. Having four level 3 systems requires cycling the large belt 1.15 times in each system every three days (which means eating the full belt and cherry picking the next one). This strategy earns 8.08bil and takes 56.25hrs per system (225hrs total). This yields 35.9mil/hr for each miner involved. This assumes that fresh belts spawn, you mine the large belt to completion on the first day it appeared, and then cherry pick the respawn, and leave it for 3 days to respawn naturally.

	Value	Manhours	Rate
One level 5	7.53bil	237	31.8 mil/hr
Two level 4's	7.67bil	233	32.9 mil/hr
Four level 3's	8.08bil	225	35.9 mil/hr

Table 4: Using minimalistic ideal strategy to maximize profit at minimal time use. The numbers are estimated over the three day respawn cycle.

Scaling down to eight level 2 systems however does not earn a higher income; it's between 29 and 31mil/hr). The next section discusses why you do not want a level 5 system. You can squeeze slightly higher profits out of it by mining the valuable ores first, thus earning a higher than "belt average" income on the last forced respawn.



Figure 13: The large belt is the key to profit mining with the hidden belt system.

Consequences

"WoW.... bunch of filthy carebears..... industry level V..... I guess it might piss ya off to have this system locked down huh?"

Bogels, -A-

The higher your industry rating the more reds will come to visit you. If you have a level 5 system they will permacamp in cloaked vessels all day just to spite you. We've personally created four level 5 systems during Dominion, and all of them ended up being permacamped until they decayed back to level 3. At any given point, only one or two solar systems in the galaxy will be level 5 industry, and players will seek you out. If there is a station in your system, you will get twice as many reds. Without a way to conceal the industry standing of your system this is unavoidable, and quickly renders any level 5 systems pointless.

This is why you are much better off maintaining a series of lower level systems, which will not attract unwanted attention. Level 4 systems are common throughout the game because they are easy to maintain, and reds will not permacamp them. Level 3 systems are ignored entirely. Couple this fact with the increased profit from having many smaller systems - this is obviously the way to go.

You work very hard to obtain your high level industry system, but you inevitably have to go to bed. If you're an American, expect all valuable ores to be poached long before you arrive. Downtime occurs in the middle of the night for Americans and middle of the day for Europeans. This gives a massive advantage to the European player base who can cash in on everyone else's work (earning the cherry picker's salary of 40mil/hr), while the people who actually maintain the system earn far less (around 15mil/hr on average).

Conclusion

The industry index system levels are exponentially larger than the last, making it very difficult to achieve high levels. Recent Rorqual boosts have improved mining yields by ~8.5%, making this a prime time to create industrial systems. The best hidden belt is the Large Asteroid Cluster at level 3. It offers the best money when mined repeatedly. Maintaining a number of level 3 systems is preferable to fewer level 4 or level 5 systems. Having many level 3 systems offers better yields, and avoids the attention of reds who seek to disrupt your activities. A level 5 system is not feasible to maintain because afk cloaked campers will occupy your system within days, rendering it too risky to mine in.

Europeans receive the most benefit from the hidden belt system, as all belts respawn during their prime time, leaving them with the most accessibility to the valuable ores. This leaves the American time zones without much profit to be had unless strict regulation is maintained over the system to prevent poachers. On average any given level is supported about 40% by cherry picking, but cherry picking alone will make you decay. The hidden belt system produces high end minerals very readily, but it is all but impossible to obtain tritanium and pyerite in any bulk from them. time has never been better to go build up your industry index.



Figure 14: Ship your refined minerals carefully. Do not stack freighters with more than 2bil of goods inside or risk being ganked in empire.